University of Alberta

Environmental Regulation of the Oil and Gas Industry in Nigeria: Lessons from Alberta's Experience

by

David Osigbemhe Iyalomhe

©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of Master of Laws.

Faculty of Law

Edmonton, Alberta

Spring 1998

National Library of Canada
Acquisitions and Bibliographic Services
395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale du Canada
Acquisitions et services bibliographiques
395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-29006-9

Canada

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Environmental Regulation of the Oil and Gas Industry in Nigeria: Lessons from Alberta's Experience* submitted by David Osigbemhe Iyalomhe in partial fulfilment of the requirements for the degree of Master of Laws.

David R. Percy

Professor David R. Percy
Professor of Law
Faculty of Law

Professor Elaine Hughes
Associate Professor
Faculty of Law

Fred Judson

Dr. Fred Judson
Associate Professor
Department of
Political Science

18 December 1997

Dedicated to my mother, Grace Iyalomhe for living her life for me and to my wife, Nwanyieze (Etseme) for being the love of my life.

ABSTRACT

This thesis is designed to identify the major issues involved in the environmental regulation of the oil and gas industry in Nigeria and Alberta. The failure of the regulatory agencies to control environmental degradation experienced in the Nigerian industry is due to existing legislative and administrative lapses.

The second chapter of the thesis examines the legislative styles adopted by the Nigerian legislature and the different approaches applied by the regulatory agencies. This is to show how the existing regime affects compliance with the regulations by oil operators and the control of pollution in the industry in Nigeria.

In the last two chapters of this study, the various approaches adopted by Alberta in controlling environmental problems are critically analysed, including the role of Alberta's main regulatory agency, the Energy and Utilities Board (EUB) in reducing oil spills and gas flaring associated with the industry. The lessons which Nigeria can learn from Alberta's regulatory experience are also discussed.

ACKNOWLEDGEMENT

To God be all the glory for the successful completion of this thesis. I am greatly indebted to all those who assisted me during my stay at the University of Alberta, particularly the Alberta Law Foundation for giving me a graduate scholarship, the Faculty of Law and Professor Elaine Hughes for providing funds through a research assistantship, and Faculty of Graduate Studies and Research for granting me the Gordin Kaplin graduate student research award which enabled me to visit the EUB at Calgary.

Professor David Percy, my supervisor, greatly inspired and motivated me during the writing of this thesis. I am not surprised that he is the toast of all students who pass through his classes. Many thanks also to the other members of my defence committee, Professor Elaine Hughes and Dr Fred Judson for their insightful comments.

Many other people too numerous to mention helped in one way or the other to ensure that I completed this thesis. Sandra Wilkins and Janice MacLean, your library assistance was excellent. I will not forget Nancy and Mark Kortbeck, Gloria Strohscein and Shane Wilson for their generosity. Dave Morris and Angela Jones of the EUB provided me with very useful information about the EUB.

To my jewel of inestimable value, Etseme, you are beyond compare. A million thanks for your love, encouragement and care. Ogo, you are a darling indeed. Emeka Duruigbo, Alwell Oyet, Abdul-Rasheed Na'Allah and Joyce Chun, thanks for your friendship. Immense thanks to my mother for not allowing my gifts and talents to be wasted, even when she had to do it alone.

TABLE OF CONTENTS

1. INTRODUCTION 1

2. ENVIRONMENTAL REGULATION OF THE OIL GAS INDUSTRY IN NIGERIA 5

A. INTRODUCTION 5

B. NIGERIA 7

1. History of Oil 7

2. Role of Oil 8

C. INDIGENOUS CONSTRAINTS CONFRONTING DEVELOPING COUNTRIES 9

1. Lack of Financial and Technical Resources 9

2. Absence of Trained and Experienced Personnel ... 11

3. Problems Hindering Effective Environmental Regulation in Developing Countries 11

a. Lack of Implementation 12
b. Political Instability and Influence. 13
c. Corruption 14
d. Bureaucratic Wrangling 15
e. Inadequate Funding of Regulatory Agencies ..... .19
f. Absence or Weakness of Environmental organizations 20
g. Absence of Private legal Intervention 21
h. Attitude of Judges 25
i. Absence of Information 28

D. COMMON ENVIRONMENTAL PROBLEMS IN NIGERIA . 29

1. Air-related Problems 30

2. Water-related Problems 31

3. Oil Spills in Nigeria 31

a. Causes ..... .32
b. Sabotage ..... .34
c. Effects ..... .40

E. LEGISLATIVE FRAMEWORK FOR ENVIRONMENTAL REGULATION OF OIL AND GAS ACTIVITIES 43

1. The Hortatory Approach. 44

2. The Discretionary Approach ..... .47

3. The Command and Control Approach. 56

4. The Reactive/ Preventive Approach ..... .62

F. A CRITIQUE OF THE VARIOUS LEGISLATIVE APPROACHES ..... .63

G. AN ASSESSMENT. 68

3. ENVIRONMENTAL REGULATION OF THE OIL AND GAS INDUSTRY IN ALBERTA 71

A. INTRODUCTION 71

B. ALBERTA 72

1. Oil and Gas Industry 73

2. Regulatory Agencies 75

a. Alberta Environmental Protection 75
b. EUB 77
i. Membership ..... .78
ii. Organizational Structure and Funding ..... .79
iii. Role and Purpose.. 79
iii.i. Technology-based Considerations 82

iii.ii. Economic and Public-interest Consideration 89
iv. Regulatory Powers 93

C. FRAMEWORK FOR THE REGULATION OF GAS FLARING 95

D. OIL SPILLS 103

1. Legal Framework for the Regulation of Oil Spills . 104

2. Emerging Issues 109
a. "One Window" Process.. 111
b. Memorandum of Understanding 112

E. ENFORCEMENT PHILOSOPHY 114

1. EUB 116

2. Enforcement Approach 117

G. AN ASSESSMENT 123

4. ENVIRONMENTAL REGULATION OF THE OIL AND GAS INDUSTRY IN NIGERIA: LESSONS FROM ALBERTA'S EXPERIENCE 127

A. INTRODUCTION 127

B. FACTORS INFLUENCING ENVIRONMENTAL STANDARDS 128

C. LESSONS FROM ALBERTA'S EXPERIENCE 135

D. RECOMMENDATIONS. 137

E. CONCLUSION 141

BIBLIOGRAPHY 142

Books 142

Articles in Books 143

Articles 145

Cases 150

Documents 151

Publications 152

Legislations 152

INTRODUCTION

> A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference, we can do massive and irreversible harm to the earthly environment on which our life and well being depend.[1]

A major problem with oil and gas exploration and production is the inability of governments and their regulatory agencies to control and prevent pollution and other associated environmental problems arising from oil operations. Oil spills, blow outs, gas flaring, etc., have resulted in loss of lives, millions of dollars in damage and have affected human health and the environment. These have drawn local, national and international attention and have led to calls for environmental regulation of oil and gas operations, to control, reduce or prevent pollution arising from the oil activities.

However, legal writers and commentators have different view points on the use of environmental regulation to control effectively or prevent pollution in the industry. The supporters of one point of view argue that the enactment of environmental laws and the establishment of a regulatory regime will change the general behaviour and attitudes toward environmental protection. They further contend that regulatory legislation is

---

[1]See Declaration of the UN Conference on the Human Environment held in Stockholm (1972) UN Doc.A/Conf.48/14 at 2:

essential to the operation of any modern society, as it plays a legitimate and vital role in protecting those who are most vulnerable and least able to protect themselves.

Some legal writers and commentators, on the other hand, submit in opposition that regulation can be complicated, slow to devise and enforce and imposes on the industry more costs that outweigh the benefits.[2] Many economists have argued in support that regulation is not the best way to encourage industry to reduce the pollutants that they emit. They posit that market incentives are better than regulations with respect to reducing costs and stimulating innovation.[3]

These criticisms surely have some validity especially when the governments do not establish effective enforcement machinery to ensure compliance with the regulations. Political and economic considerations may also determine whatever importance the regulated industry gives to the environmental regulatory regime. Nevertheless, the critics of environmental regulation fail to realise that if the government must control or prevent pollution in the industry, the government will set rules or standards to guide them. The regime will inevitably be regulatory. Moreover, a contrary view has emerged which argues that environmental regulation provides health and ecology protection and

---

[2]Brian Greenwood, "Looking Ahead: Environmental Regulation- A Future?" in A.E. Boyle, ed., *Environmental Regulation and Economic Growth* (Oxford: Clarendon Press, 1994) 115.

[3]Jack I. Knetsch, "Environmental Economics, Environmental Law: An Intensive Short Course for Practitioners" (1992) at 32, cited in Roger Cotton & Cara Clairman, "The Effect of Environmental Regulation in Technological Innovation in Canada" (1995) 21 Canada-United States L.J. 239.

stimulates the economy.[4] I am concerned in this thesis, with how effective regulation of the industry has been in the protection of the environment.

Most countries have promulgated laws and regulations to control or prevent pollution in the oil and gas industry. However, the persisting question is: how effective have the laws and regulations been in the control of pollution resulting from oil operations? Some countries have made tremendous progress in controlling or reducing pollution and other related environmental problems caused by the industry, while in others, environmental degradation is on the increase.

This thesis is therefore timely, as it attempts to carry out a comparative study of environmental regulation of selected pollution problems in the industry in Nigeria and Alberta, representing developing and developed countries respectively. The study is particularly significant as both jurisdictions depend heavily on revenue from oil for the sustenance of their economies.

This thesis discusses how the Nigerian government uses law and regulation to control pollution and other environmental problems associated with the industry and compares the regulatory measures adopted by Nigeria and Alberta in the control and prevention of incidences of oil spills and gas flaring. For this twofold study, the discussion is placed in context. In Chapter II, I discuss a brief history and role of oil in Nigeria to show the importance of the commodity in the nation's economy as a major foreign exchange earner. I also examine the problems confronting developing countries

---

[4]David Gardiner & Paul R. Portney, "Does Environmental Policy Conflict with Economic Growth" (1994) 115 Resources 19.

generally and Nigeria in particular (including environmental context) to decide whether justifications exist for the attitude of the Nigerian government toward environmental regulation. I carry out an analysis of the various environmental problems arising from oil operations, together with the causes and effects of such problems. A critical discussion is then undertaken of the various legislative approaches of existing environmental and oil and gas law in order to show the reasons for the inefficiency of the regulatory agencies and the present enforcement machinery.

Chapter III consists of a comparative analysis of the regulatory approaches used in Alberta in the control and prevention of oil spills and gas flaring. The chapter also contains an examination of the Alberta practice to show the composition, powers and enforcement philosophy of the province's regulatory agencies. A comprehensive discussion on the use of discretionary powers, negotiation and bargaining tools as opposed to prosecution and other strict enforcement approaches is carried out to show the priority or otherwise given to the impact of pollution on the health and environment of Alberta.

The fourth Chapter outlines the legal, political and economic factors hindering effective environmental regulation in Nigeria as a developing country and the factors supporting the present environmental attitude of Alberta in the regulation of the industry. I also discuss lessons that Nigeria can learn from the Albertan experience. Finally, I make several recommendations that I believe, will help both jurisdictions to adhere to the call by the United Nations for the protection of human health and the environment, while still increasing their revenue base from oil and gas exploration and production.

2

ENVIRONMENTAL REGULATION OF THE OIL AND GAS INDUSTRY IN NIGERIA

> When considering a problem as large as the degradation of the global environment, it is easy to feel overwhelmed, utterly helpless to effect any change whatsoever. But we must resist that response, because this crisis will be resolved only if individuals take some responsibility for it. By educating ourselves and others, by doing our part to minimise the use and waste of resources, by becoming more active politically and demanding change - in these ways and many others, each of us can make a difference.[1]

A. INTRODUCTION

The oil and gas industry plays an important financial role in Nigeria. The vigorous exploitation of oil and gas aimed at solving the socio-economic problems of the country has, however, left in its trail a catalogue of environmental problems. The devastating effects of the attendant environmental degradation resulting from oil and gas activities are now a communal, national and global concern. Several incidents of oil spills have become prominent features of oil and gas exploitation in the country.[2]

---

[1]Al Gore, *Earth in the Balance: Ecology and the Human Spirit* (New York: Houghton-Mifflin, 1992) at 366.

[2]In Nigeria, petroleum is defined as "... mineral oil (or any related hydrocarbon) or natural gas as it exists in its natural state..." So in this thesis, petroleum may be used in place of oil and gas. Petroleum Act 1969 (Nigeria), 1990, c. 350, s.14.[hereinafter Petroleum Act]

It is the purpose of this chapter to critically assess the existing legal aspects of environmental regulation in the oil and gas industry in Nigeria, more particularly, the framework for the control of oil spills arising from oil and gas operations. The adequacy or otherwise of the various legislative and administrative provisions will be examined to show their scope and limitations.

This chapter will be divided into five sections. Section one provides a general view of the geographical description of Nigeria and the history and role of the oil and gas industry in the country. In the second section, I will examine the common constraints confronting developing countries like Nigeria in the exploration and exploitation of their mineral resources and the problems affecting environmental regulation of the oil industry. Section three of this chapter will constitute a special inquiry on the common environmental problems associated with petroleum activities including the incidence of oil spills - the causes and effects of such problems on humans and the environment.

In the fourth section, I will develop a thematic approach to critically assess the environmental regulation for the control and/or prevention of these problems in the oil and gas industry as contained in existing petroleum and environmental legislation, and an analysis of the advantages and shortcomings of the different legislative styles. There will also be an examination of alternative approaches, including a contrast between the reactive response advocated in the existing regulation and a preventive approach, which will be proposed for the control and prevention of the environmental problems currently experienced from oil operations. Section five contains an assessment of the problems of the various approaches currently in force in Nigeria.

B. NIGERIA

Nigeria is the most populous country in sub-Saharan Africa, with a population estimated at 88.5 million in 1990.[3] Recent figures released by the National Population Commission put the current figure at 109 million people[4]. The Nigerian constitution of 1979 provides for a presidential/federal system of government and the country is divided into 36 constituent states, presided over by state governors and a Federal Capital Territory (FCT) headed by a Federal Minister. Each state and the FCT is further divided into smaller units called local government areas. The country is presently under a military government which operates a unitary structure. The Federal Military Government (FMG) is empowered "to make laws for the peace, order and good government of Nigeria and any part thereof with respect to any matter whatsoever."[5]

1. History of Oil

After the initial unsuccessful exploration efforts for oil in 1908 by the German Bitumen Company, Shell Petroleum Development Company made the first discovery of oil in commercial quantities in 1956 at Oloibiri in Rivers State,[6] which ushered Nigeria into

---

[3]Adeola F. Adenikinju, "Energy-Pricing Policy and the Environment in an Oil-Exporting, Developing Country" (1995) 14:4 OPEC Rev. 307 at 309.

[4]National Population Commission Press Release, April, 1997.

[5]Supremacy of Powers and Constitution Amendment Decree (Nigeria), 1984, c. 1, s. 2(1).

[6]M.A. Ajomo, "Law and Changing Policy in Nigeria's Oil Industry" in J.A. Omotola ed., *Law and Development* (Lagos: University of Lagos Press, 1987), 84 at 86.

the international arena of major oil producers and exporters.[7] There have been increased oil operations in the various parts of the Niger Delta in the southeastern part of Nigeria[8] by different oil companies[9] operating under some form of arrangement with the Nigerian National Petroleum Company (NNPC)[10] in recent years.

2. Role of Oil

The economy of Nigeria relies on oil in order to earn foreign exchange, and is very likely to continue to do so for a long time. Nigeria depends on oil as the human body depends on oxygen. Oil accounts for more than 90 per cent of the nation's total foreign exchange earnings and more than 70 per cent of the revenue base of the Government.[11] Nigeria earned more than $100 billion in oil revenues between 1974 and 1988 alone.[12]Every successive Nigerian Government has depended on revenue from oil to finance its

---

[7]S.R. Pearson, *Petroleum in Nigerian Economy* (California: Stanford University Press, 1970) at 15.

[8]L.H. Schatzl, *Petroleum in Nigeria* (Ibadan: Oxford University Press, 1969) at 1. The oil-producing states are: Abia, Akwa Ibom, Cross River, Delta, Edo, Imo (Ebonyi)*, Ondo (Ekiti), and Rivers (Balyesa)*. *New states recently created by the FMG on 1st October, 1996.

[9]The oil companies operating in Nigeria presently include: Shell Petroleum Development Company of Nigeria, Chevron Nigeria Ltd, Mobil Producing Nigeria, Agip Oil Company, Agip Energy and Natural Resources Ltd, Nigus Petroleum, Ashland Oil*, Elf Nigeria Services Ltd, and Dubril Oil Company Ltd. *The FMG recently withdrew the operating license of Ashland as a result of Ashland's unilateral assignment of its' oil interest to a South African Company without the government's consent or approval.

[10]Nigerian National Petroleum Corporation Act, 1977, ss 4 & 5(1)(c). The NNPC is the State company and is empowered to enter on behalf of the Government into any contract with a licensed oil company.

[11]Bright E. Okogu, "The Oil Sector and the Future of the Nigerian Currency: Perspective Planning Against Instability" (1991) 15:1 OPEC Rev. 13 at 14.

[12]Ibid

programmes and projects, so that every effort is made to ensure continuous exploration and production of oil and gas, sometimes to the detriment of some other very important areas, such as effective environmental regulation of oil and gas operations.

Nigeria's experience in this respect is similar to those of most other developing countries. Accordingly, I will next discuss the indigenous constraints confronting developing countries like Nigeria in the exploration and exploitation for oil.

C. INDIGENOUS CONSTRAINTS CONFRONTING DEVELOPING COUNTRIES

Apart from the fact that proceeds from oil remains the main source of revenue for majority of oil-producing developing countries, they are confronted with indigenous constraints in the exploration and exploitation of oil in their territories. The desire to exploit the available natural resources is very strong but the means to do so are very limited and in most instances, are not within the reach of the developing countries. I will now discuss the problems created by this phenomenon in the exploration and production of oil and gas.

1. Lack of Financial and Technical Resources

Petroleum exploration and exploitation are high-risk capital intensive endeavours with the operator likely to lose substantial amounts of money should the search for oil prove

futile.[13] It also involves technically complex processes specific to the industry[14] which developing countries cannot afford. Lack of a mature science and technology base also prevents the developing countries from having their own technology needed for this sophisticated and capital-intensive industry.[15]

Developing countries are therefore left with no other option but to seek the initiative and interest of foreign oil operators, many of whom are transnational corporations (TNCs) including the famous seven sisters.[16] The "seven sisters" in international oil industry are, Exxon, Shell, BP, Chevron, Mobil, Texaco and Standard Oil of California.[17] These foreign oil operators are business concerns whose initiative is not motivated by altruistic considerations or a sense of sympathy but their own "financial balance sheets, the satisfaction of shareholders and the continued growth and strength of their firms worldwide."[18]

Oil companies, being profit-oriented concerns, usually resist attempts by host states, especially those in the developing world, to require them to do anything not in

---

[13]Hassan S. Zakariya, "Petroleum Exploration in Developing Countries: The Need for a Global Strategy Based on Public Policy" (1981) 5:1 OPEC Rev. 8 at 14.

[14]Hassan S. Zakariya, "Transfer of Petroleum Technology to Developing Countries" (1982) 6:1 OPEC Rev. 41 at 49.

[15]O.A. Alegimenlen, "Issues in the Acquisition of Petroleum Development Technology for Third World States" (1991) 15:2 OPEC Rev. at 123

[16]Z. Mikdashi, *The Community of Oil Exporting Countries* (New York: Cornell University Press, 1972) at 17.

[17]Ibid.

[18]O.A. Alegimenlen, supra note 15 at 124.

furtherance of their set purpose, for they argue, that such demands increase cost of production and thereby reduce profit.

2. Absence of Trained and Experienced Personnel

The need for adequately trained and experienced personnel in the petroleum industry cannot be over emphasised. Petroleum exploration and production require "professional, cautious and consummate players who have at their disposal an array of accumulated experience,"[19] not only to minimise failures in operations and increase successes, but also to develop new strategies for increased production.

3. Problems Hindering Effective Environmental Regulation in Developing Countries

There are other problems (most of which are peculiar to the developing countries) hindering the environmental regulation of the oil and gas operations which will also be raised in the course of this thesis. For all of these problems, Nigeria will be our reference point.

---

[19]H. S. Zakariya, supra note 14.

It is now settled under international law that every state has sovereign rights over its natural resources[20] and several states have asserted this position in their laws.[21] The issue that remains unresolved is whether those states who do not have the means to exploit the resources are really in actual control. Developing countries like Nigeria are confronted with the problem of deciding whether to allow foreign investors to participate in the industry or to leave the resources unexploited. As a result, in most cases, these foreign-based and controlled oil companies are left to explore and produce the mineral resources, in part because of the reliance of successive governments in the developing world on the revenue for their programmes of expenditure.

a. Lack of Implementation and Enforcement

Existing environmental regulations are never effectively implemented. It is conceded that some developing countries have a large array of environmental laws and regulations, but the number of such laws and regulations should not necessarily be the yardstick for measuring their effectiveness. This position is put succinctly by Jaro Mayda:[22]

---

[20]J. Baloro, "Some International Legal Problems Arising From the Definition and Application of the Concept of Permanent Sovereignty Over Wealth and Natural Resources of States" (1987) 20 CILSA 335. See also R. Kemper, "The Concept of Permanent Sovereignty and its Impact on Mineral Contracts" in *Legal and Institutional Arrangements in Mineral Development* (London: Mining Journal Books, 1982) 29 at 30.

[21]For example in Nigeria, see Petroleum Act, supra note 2 at s 1(1); Federal Constitution of Nigeria, 1979, s 40(3).

[22]Jaro Mayda, "Environmental Legislation in Developing Countries: Some Parameters and Constraints" (1985) 12:4 Ecology L. Q. 997 at 1007.

> Legislation is really not the critical factor in environmental improvement. Legislation does not guarantee that the intent of the legislator will be implemented. The major practical problem results from [the] difficulty to set up a control and enforcement mechanism to apply the legal provisions. In the first place, a considerable portion of the law has never been expressed in regulations. Their application is therefore pending. In the second place, the difficulty to establish effective systems of control and enforcement frequently exceeds the capacity of the public sector.

A major problem associated with environmental law and regulation in developing countries is the absence of the political will to enforce the regulation, on the excuse of their unwillingness to discourage oil investors, particularly those externally financed. Adewale[23] submits that

> A thread that runs through these [Nigerian] statutes is the inability to effectively ensure an enforcement process to enable the workability of these laws. Enforcement requires adequate monitoring equipment, staff and funding. It is doubtful if presently these facilities exist for the monitoring of the environment.

b. Political Instability and Influence

A constant struggle for political power is rampant in many developing countries, because the acquisition of political power is the easiest means of acquiring or consolidating economic power in such countries. The struggles within the elite for the political and economic power often lead to instability and frequent changes of regimes.[24] A public commentator has rightly posited that "political energy in Nigeria is directed to getting

---

[23]Omobolaji Adewale, "The Right of the Individual to Environmental Protection: A Case Study of Nigeria" (1991) 12:4 Rivista Giuridica Dell' Ambiente 649 at 650.

[24]Cyril I. Obi, "Political and Social Considerations in the Enforcement of Environmental Laws" in M.A. Ajomo & O. Adewale eds., *Environmental Law and Sustainable Development in Nigeria 1st ed.* (Lagos: N.I.A.L.S., 1994) 67 at 73-74.

control of the oil wells."[25] Nigeria had three different heads of state in 1993 alone and within the last five years there have been "five petroleum ministers."[26] Factionalism and patronage controlled by powerful political figures determine both the allocation of resources and the degree of enforcement of regulations. These problems, in addition to the presence of a military government which operates by decrees without regard for environmental protection, result in the truncation of environmental policies. Frequent changes of experienced managers also bring about discontinuities and confusion.[27]

c. Corruption

Bribery and corruption still hamper the environmental efforts of many developing countries.[28] Corruption has markedly increased and in most countries in the developing world, especially in Africa, corruption is "pervasive and endemic."[29] In Nigeria, the most pronounced form of corruption is state-related, where public office holders use their positions to divert public funds earmarked for environmental projects to their personal bank accounts, or award the contracts for the projects and collect a certain percentage

---

[25]Nick Ashton-Jones quoted in David Knott, "Heated Debate Hits Niger Delta Oil" (1996) 94:17 Oil and Gas Journal 34.

[26]"The Nigerian Liquefied Natural Gas Project: Current Structure and Future Prospects" (1995) 62:5 Petroleum Economist xvi.

[27]Cyril I. Obi, supra note 24.

[28]Williams Prince & David Nelson, "Developing an Environmental Regulatory Model-Piecing Together the Growing Diversity of International Standards and Agendas" in *International Resources Law 1* (Denver: Rocky Mt. L. Foundation, 1995), 13-1 at 13-8.

[29]Simon Coldham, "Legal Responses to State Corruption in Commonwealth Africa" (1995) 39:2 J.A.L. 15.

from the contractors.[30] The effect of corruption of this nature is that many projects are not executed or may be poorly executed. In the present circumstances, the military government jealously defends its power and dissipates the country's wealth as corruption reigns.[31]

d. Bureaucratic Wrangling

Bureaucratic wrangling between the different administrative agencies and sectors involved in environmental control is common as they fail to cooperate, compete for scarce resources and influence over the policy agenda and other issues. Where coordination has been possible, as in the creation of central structures to manage the environment, the institutions are frequently interdepartmental, rather than independent bodies. The Ministry of Petroleum and Mineral Resources(MPMR) is engaged in power struggles with the Department of Petroleum Resources(DPR). As a federal government department, the MPMR supervises all governmental affairs relating to petroleum and other mineral resources excluding solid minerals. MPMR has several departments/corporations under it, including the state oil company - the Nigerian National Petroleum Corporation (NNPC) and the DPR.

---

[30]Cyril I. Obi, supra note 24.

[31]Editorial, (1995) 93:48 Oil and Gas J. 21.

On the other hand, the DPR was established initially as an integral component of NNPC[32] but is now fully under the control and supervision of the MPMR.[33] As a delegate of the Minister, the DPR is mainly responsible for the monitoring, supervision and enforcement of all Acts and Regulations relating to oil operations in Nigeria and the exercise of the discretionary powers conferred on the Minister by those Acts and Regulations.

The specific roles the DPR is expected to play in the petroleum industry are described by Osuno in his article (which technically describes the predecessor of the DPR) to include:[34]

> (a) overseeing that the activities of all the companies engaged in petroleum operations are conducted in accordance with all applicable laws and regulations in its capacity as the Government agency for the enforcement of the Petroleum Act, 1969 and the Pipeline Act and Regulations made thereunder;
> (b) monitoring and control of oil industry operations to ensure compliance with national goals and governing policies on Nigeria's petroleum resources;
> (c) enforcement of conservation measures and laws especially as to reservoir energy, production methods and practices and other oil field practices, rates of production and permissible quantities of production;
> (d) issuing permits, licences, leases and giving authorizations and approvals as required under the various enactments which cover the whole range of oil and gas administration;
> (e) keeping records of petroleum activities, data, production and significant operational occurrences; and
> (f) monitoring and control of environmental pollution associated with oil and gas operations.

---

[32]NNPC Act, supra note 10 at s. 9.

[33]Nigerian National Petroleum Corporation (Amendment) Act (Nigeria), 1979, s 9(3).

[34]B.A. Osuno, "The Role of the Petroleum Inspectorate Division of the NNPC as the Guardian of the Nigerian Oil Industry"(Paper presented to a National Workshop on Nigerian Petroleum Law, Lagos, 31 May, 1984) 1-3 [unpublished].

Under the present arrangement, the DPR is not an independent body, as the exercise of its powers depends on whatever authority is delegated to it by the Minister. Considering the political nature of decisions relating to oil operations in Nigeria, it would not be surprising if any decision taken against an oil operator by the DPR to enforce environmental protection were rescinded by the Minister. The obstacles to the efficient functioning of DPR are further complicated by inadequate funding, staffing, general services and facilities and the reliance on the Ministry for its needs.

All attempts by the DPR to carry out its important public interest functions, especially in the area of environmental protection are likely to be thwarted by the MPMR if the Minister disagrees with any decisions made by the DPR. As will be noted later in this thesis, absence of a detailed legal framework to restrict the discretionary and veto powers of the Minister in most cases may lead to the arbitrary use of such powers.

A public affairs analyst has remarked that the ability of the DPR to carry out its onerous functions have been further limited due to:[35]

> The bureaucratic processes in the Ministry crippling its operations, the inadequate training of staff to enable them to cope with the changes in the oil industry, the lack of tools and other infrastructure necessary to perform their jobs and the increasing temptation to look the other way while oil companies violate rules and regulations.

These problems of the DPR affect environmental protection in the industry and this has been compounded by a struggle for supremacy arising between the DPR and the Federal

---

[35]Fred Ohwahwa, "Deliberate Leakage in the Oil Industry" [Lagos] *African Guardian* (28 September 1992) 12.

Environmental Protection Agency (FEPA) over the control of the environmental regulation of the oil industry. Interpretation of statutory provisions giving a pollution control mandate to the FEPA appear confusing. Section 23 of the Federal Environmental Protection Agency Act, 1988[36] provides:

> The Agency will cooperate with the Ministry of Petroleum Resources [DPR] for the removal of oil related pollutants discharged into the Nigerian environment and play such supportive roles as the Ministry of Petroleum Resources [DPR] may from time to time request from the Agency.

The degree of cooperation or supportive roles which FEPA will have with the DPR is not clearly stated especially when no similar mandate is given to the DPR. Presently, FEPA is under the Presidency and has no structural machinery to control pollution related matters with the DPR. Both agencies operate independently of the other. It has been argued that because the DPR is,[37]

> an integral part of the NNPC (now under MPMR) - a State oil company and a major contributor to the problems of oil pollution and environmental degradation in the Niger Delta area, should not monitor itself, judge itself, and prescribe its own solution to the problems it might have created together with other oil companies operating in the country.

The present arrangement of placing the DPR directly under the MPMR does not encourage any significant changes to be made in the pursuit of effective environmental protection as the DPR continue to derive its authority for the control and supervision of the industry from the MPMR.

---

[36]Federal Environmental Protection Agency Act 1988 (Nigeria), 1990, c. 131.

[37]Raimi O. Ojikutu, "Sustainable Development, Oil Communities and the Oil Industry" (Paper presented to a Seminar on Oil and Gas Law, at the University of Lagos, 14-16 May 1996) 11. [unpublished]

Under the present law, FEPA cannot unilaterally take any action to abate pollution in the industry without the approval of DPR. The DPR on the other hand cannot effectively control pollution as long as it is tied to the apron strings of MPMR. It is therefore necessary to amend the present legislation to give concurrent powers to the DPR and FEPA to control pollution in the industry.

e. Inadequate Funding of Regulatory Agencies

Environmental regulatory agencies in developing countries generally lack adequate funding and technical expertise. The sources of hazard and pollution that require more sophisticated measurement, sometimes involving long-term projections, are often beyond the control of government regulators.[38]

A former Director of the Environment[39] in Nigeria stated that the capital budget allocation to the Federal Environmental Protection Agency in 1994 was 81.25 million naira[40] out of a projected sum of 240 million naira which was proposed to be spent by the agency for that year. The budget of the DPR is dependent on the allocation from the MPMR. Due to the limited financial resources at the disposal of these agencies, they are unable to recruit sufficient numbers of trained and experienced personnel to carry out

---

[38]J.P. Meager, "Environmental Protection and Industries in Developing Countries: The Case of India Since Bhopal" (1990) 3:2 Stan. J. Int'l L. 1 at 8.

[39]Raimi O. Ojikutu, "Environmental Funding and the Transfer of Technology" in M.A. Ajomo & O. Adewale eds., supra note 24, 138 at 144.

[40]Bank of Canada exchange rates of foreign currencies, July,1997. The current exchange rate is 59.18 naira to the Canadian dollar.

their functions of implementing, managing and administering the environmental regulation program. This results in a pathetic situation where the officials of the regulatory agencies have had to depend on oil companies to take them to the sites of oil spills in order to carry out their duties. As a result, it is hardly surprising that the subsequent reports are inadequate and not comprehensive.[41]

f. Absence or Weakness of Environmental Organisations

Viable and informed environmental organisations and movements are lacking in some developing countries. In countries where they exist, they are less effective especially in countries under military rule like Nigeria. The environmental organizations are regarded as anti-government and are therefore oppressed and their views disregarded. Campaigns for environmental protection by individuals and groups have been met in some cases with grave consequences by the present military government. This is demonstrated in the killing by hanging of Ken Saro-wiwa and the eight Ogoni environmental rights activists.[42] The Civil Liberties Organization (CLO), the leading human rights body in Nigeria, has

---

[41]Nkereuwem Akpan, "Workers' Health, Safety, Vital to Environmental Protection" [Nigeria] *Daily Sunray* (21 October 1993) 5.

[42]Ken Saro-Wiwa was the leader of the Movement for the Survival of Ogoni People (MOSOP). Together with the other eight MOSOP leaders, campaigned against the environmental degradation resulting from oil operations in the Niger Delta caused by the oil companies, with the full support of the military government of Nigeria. The Ogoni environmental rights activists were tried by a military tribunal for what the government called their involvement in the mob killing of four pro-government supporters during the movement's campaigns for mass boycott of a federal elections, until environmental protection is assured in Ogoniland. They were subsequently found guilty by the military tribunal and sentenced to death by hanging without the right to appeal.

had many of its members detained, beaten and killed and the passports of some of its leaders have been seized.[43]

g. Absence of Private Legal Intervention

In most developing countries, private persons are not allowed to bring an action before a court for environmental harm unless they can show that their legal, equitable, constitutional or other rights have been adversely affected by the action of the other party and class actions (actio popularis) are not recognised.[44] Following this common law tradition, people in Nigeria will be denied standing in cases of breaches of environmental law and regulations by an oil company unless they can establish that they suffered special damages as a result of the breach, since environmental problems like pollution are regarded as a public nuisance for which only the Attorney-General can sue.[45]

This public nuisance rule has remained a major obstacle to persons seeking redress for harm to themselves and the environment in particular. This common law position denies anyone the right to sue, unless such people can prove that they have suffered damage different from or greater than that suffered by their neighbours.

---

[43]"Commonwealth Suspends Nigeria Over Executions" *N.Y. Times* (12 November 1995) 18.

[44]Jose M. B. Navia, *Environmental and Water Law in the South* (Utrecht, Netherlands: International Books, 1994) 326.

[45]Tunde I. Ogowewo, "The Problem With Standing to Sue in Nigeria" (1995) 39:1 J.A.L. 1. See also Bola Ogunsanwo, "Liability and Compensation for Environmental Damage" in M.A. Ajomo & O. Adewale, supra, note 24, 48 at 58.

In *Amos* v *Shell BP Nigeria Ltd*,[46] the plaintiff sued in a representative capacity claiming substantial damages from the defendant company as a result of the heavy flooding caused by the defendant's large earth dam across a creek, which had the effect of stopping all canoe movement, commercial and agricultural activities. The trial judge held that because the creek is a public waterway, blocking it is a public nuisance. Thus, a representative action for special damages was improper because the interest and losses suffered by the victims were the same as those suffered by the general public.

The implication of this rule is that only the Attorney General can successfully institute legal proceedings to protect the environment without the issue of standing being raised. Absolute discretion is granted to the Attorney General to decide whether or not to institute an action aimed at safeguarding the public interest. The exercise of such powers cannot be questioned by the public in cases where the Attorney General decides not to institute an action as the Attorney General is only responsible to his appointor, that is the Head of State.

One exception to this rule is the granting of a written consent by the Attorney-General to anyone who meets his standards to bring a relator action and most often he uses his unquestionable discretion to deny such requests. The Attorneys-General in Nigeria are not noted for giving this type of consent easily (if at all), as noted in several Nigerian cases.[47]

---

[46](1977) S.C. 109.

[47]See especially *Gani Fawehinmi* v *H. Akilu, In re J. A. Oduneye* (D.P.P) (1987) 4 N.W.L.R., pt. 67 at 797.

Relaxation of this rule on the right or standing to sue is advocated in order to enhance environmental protection in Nigeria, more particularly when the public and private wrong distinction seems unrealistic under the circumstances. Paul Muldoon has rightly argued that allowing this obstacle to justice is "repugnant in today's society because in most environmental cases, the distinction between "public" and "private" wrong is illusory." Environmental degradation does, in the long term, result in "private" wrongs in some way.[48] Muldoon[49] further submits that this distinction only succeeded in sending an undesirable signal to polluters to pollute to a very large magnitude so that private actions cannot be maintained against them.

It is conceded that there is a difference between the general problems of public nuisance faced by common law regimes exemplified by Muldoon's comments and the Nigerian situation, as some factors like economic and governmental policies appear to be influencing the law in Nigeria. It is submitted that considering the effect of environmental degradation, an approach similar to that recommended by Muldoon should be applied in Nigeria. Here, it is suggested that wisdom lies in adopting the reasoning of the Nigerian Supreme Court[50] (though applied in a case involving abuse of governmental powers) in pollution related cases. The court stated that:

> To deny any member of such a society who is aware or believes, or is led to believe, that there has been an infraction of any of the provisions of our Constitution, or that any law passed by any of our legislative Houses, whether

---

[48]P. Muldoon, "The Fight for an Environmental Bill of Rights" (1988) 15:2 Alternatives 33 at 35.

[49]Ibid.

[50]*Adesanya* v *President of the Federal Republic of Nigeria & Anor* (1981) 1 All N.L.R. 1.

> Federal or State, is unconstitutional, access to a court of law to air his grievance on the flimsy excuse of lack of sufficient interest is to provide a ready recipe for organised disenchantment with the judicial process.

This bold declaration should be applied to cases involving claims for environmental damages as it will assist in eliminating the power imbalance between the public on the one hand and the oil operators/polluters on the other.

The granting of standing to a victim of a spill or gas flare does not automatically entitle the plaintiff to an award of damages by the courts as the complainant or plaintiff is required to prove a direct link between the act of pollution and the harm suffered. This is an onerous task to be accomplished by the plaintiff who mostly is unable to prove its case as a result of limited access to the needed special /technical expertise required for such purposes, unlike the oil operators who have easy access to such personnel or experts.

In order to solve this problem, it is submitted that an amendment to the existing law should be made, snifting the onus to the polluter, once the minimal factual threshold is established that an environmental hazard, such as a spill or uncontrolled flare, has taken place. There are two reasons for this proposition: (a) the long-term and potentially irreparable harmful effects of environmental degradation on humans and the environment and (b) an operator who allows his operations to degrade the environment should bear the consequences of his action.

h. Attitude of Judges

Some judges in Nigeria are alleged to have contributed to the problem of ineffective enforcement of environmental laws and regulation.[51] Professor Ajomo stated that Nigerian judges have in several decisions failed to realise that economic development can be compatible with environmental conservation. *Allar Irou* v *Shell-BP*[52] is a classical example of this point. In this case, the plaintiff brought an application for injunction praying the court to restrain the defendant company from polluting the plaintiff's land, fish pond and creek. The judge refused to grant the injunction sought, on the ground that nothing should be done to disturb the operations of a trade [mineral resources] from which the country derives its main source of revenue.

With respect, the judge failed to realise that what the plaintiff was asking for was not a stoppage of oil operations, but that the defendant should be restrained from carrying out its activities in a way that would adversely affect the plaintiff. Decisions of this nature in the enforcement of environmental laws and regulations, or in claims for damages for their breach, will certainly not enhance environmental protection. In some other cases, the judges have stuck adamantly to the common law requirements on liability for nuisance, without taking the special circumstances into consideration in passing judgements in environmental related cases.

---

[51]M.A. Ajomo, "An Examination of Federal Environmental Laws in Nigeria" in M.A. Ajomo & O. Adewale, supra note 24, 11 at 22.

[52]Suit No. W/89/71, Warri HC 26/11/73 [Unreported] cited in M.A. Ajomo& O. Adewale, ibid.

In *Umudje* v *Shell BP*[53], the court also held that the defendant company was not liable in a claim for damages brought by the plaintiff against the defendant company for blocking and diverting a natural stream thus interfering with the plaintiff's fishing rights. The court held that such cases can only by instituted by the Attorney General or private persons who have been granted written consent by him. Though the court rightly applied the common law public nuisance rule, it failed to avert its mind to the adverse effects of the environmental harm on the plaintiff, which would have resulted in the relaxation of the rule in his favour.

I here advocate that class proceedings should be allowed for environmental damage in Nigeria. A representative plaintiff should be allowed to sue on behalf of those affected, whether or not they are identifiable to the court or even aware of the court action. The representation should operate unless a member of the affected group chooses to opt out of the action.[54]

The present attitude of some judges in Nigeria is not surprising, for exercising judicial powers under a military regime demands great courage. Military rulers do not like judges who make decisions that are unfavourable to them. However, apart from the fear of reprimand by the military authority, other factors may be responsible for the current judicial timidity to environmental litigation in Nigeria. Speaking on the then

---

[53](1975) 11 S.C. 155.

[54]See Class Proceedings Act, 1992, S.O. 1992, c.6, where the Province of Ontario, Canada, amended its laws to overcome the legal and procedural hurdles adopted by the common law doctrine on representative actions.

American scenario (which is a typical example of the present Nigerian situation), Judge David Bazelon reasoned that judges' attitudes in environmental matters are due to:[55]

> Scientific and technological developments in this century [which] have outstripped the common law and thrust our court into a new role. Scientific questions touching life and health are increasingly dealt with through government regulation. When I came on the bench thirty-one years ago, a judge reviewing rate regulation, or labour law, or securities law could be expected to have some understanding of such subjects. These fields lay within the general experiences of most lawyers. Today, a court reviewing regulatory action in arcane areas of science and technology can have little real knowledge of the substantive questions.

Legal practitioners are not exempted. For in spite of their on-the-job training and the customary ability of many experienced lawyers to serve as generalists, with a capacity to adjust, manage and synthesize new facts, very few lawyers have been able to satisfactorily fulfill this function in the emerging complex field of environmental protection and regulation.

This problem is compounded by the fact that courses in oil and gas law and environmental law are offered in very few faculties of law in Nigerian universities. Where they are offered, many law professors use their general knowledge of international law in the teaching of such courses. It is advocated that these courses should be introduced and taught by professors with specialized training, as it has become obvious that present and future judges (as well as lawyers) need such education and information to carry out their judicial and professional functions relating to environmental matters. This

---

[55]Richard A. Carpenter, "Ecology in Court, and Other Disappointments of Environmental Science and Environmental Law" (1982) 15 Nat. Res. Lawyer 573 at 579.

will only be useful if military government ends, as lawyers and judges will be free to carry out their various duties.

In Nigeria, environmental pollution cases can only be decided at the Federal High Court which is vested with exclusive jurisdiction in such matters. Federal judges are already saddled with other cases in which they also have exclusive jurisdiction so that environmental cases become an additional burden. These judicial attitudes and limitations greatly affect enforcement of environmental laws and regulations through the courts, as the Attorney General and/or environmental enforcement officers may not be keen to take cases to courts which will require long period of time before they can be determined.

i. Absence of Information

Due to the relatively low degree of technological advancement and the importance attached to information in most developing countries, especially in environmental matters, adequate and reliable data on sources, amounts, types, control and preventive measures taken in environmental protection are not usually available. Any information in possession of government agencies and oil companies is not accessible, as such documents or information are regarded as classified. In some cases, it is virtually impossible to get access to any timely information.[56] The situation is made worse by the absence of any legislation which guarantees freedom of information.

---

[56]All attempts made by me to get the relevant guidelines and research materials from the DPR and the FEPA were futile as the officials of both agencies refused to provide such information on the excuse that such documents were classified and that the MPMR has ordered that no documents should been given to outsiders for any purposes including research.

D. COMMON ENVIRONMENTAL PROBLEMS IN NIGERIA

Exploration and exploitation for oil in the Niger Delta occur in or near inhabited areas or areas used for farming and may be carried out offshore in some cases, where they have affected rich fishing and shrimping grounds. Increased oil operations have an almost immediate impact on humans and the environment. The situation may be different in most other oil producing countries, where petroleum activities are carried out in relatively uninhabited areas, or areas that are not otherwise economically productive.

The environmental problems which have manifested themselves as a result of oil and gas operations in Nigeria take various forms. They arise as a result of land-based operations or offshore activities[57], transportation operations, marketing operations, including terminal operations and petroleum refining operations[58]. Serious air, water, land, noise and thermal pollution[59] emanate from such operations. I will discuss the most significant environmental problems in this thesis.

---

[57]Fola Sasegbon, "Current Developments in Oil and Gas Law in Nigeria - With Comparative Analysis With Other African Oil Producing Countries" in *Energy Law '87* (Munich: Matthew Bender, 1987) 363 at 368. The writer opines that there are several environmental problems connected with production facilities in offshore seismic areas and platform fouling in Nigeria.

[58]J.N. Nwankwo and D.O. Irechukwu, "Problems of Environmental Pollution and Control in the Nigerian Petroleum Industry" in *The Petroleum Industry and the Nigerian Environment* (Lagos: Federal Ministry of Housing and the Environment, 1983) 102 at 103 [hereinafter Petroleum Industry '83].

[59]There are several definitions of Pollution. I will adopt, for this thesis, the definition by the Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), quoted in O. Adewale, "Environmental Pollution in the Petroleum Industry" (1991)12 Justice 9 "... the introduction by man directly or indirectly of substances or energy into the environment, resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities."

1. Air-related Problems

Dangerous gases causing air pollution are emitted into the atmosphere by turbines, engines, gas sweating and sulphur recovery plants.[60] The burning of hydrocarbons also results in extensive air pollution and the refining of petrochemicals leads to thermal pollution. The problem of gas flaring will be given particular attention in this study.

A large quantity of associated gas is produced in conjunction with crude oil in Nigeria and most oil companies choose to flare instead of re-injecting the produced gases. Gas flaring is a major environmental problem and causes serious thermal pollution.[61] Other problems associated with gas flaring include night-glare; an appreciable degree of noise; destruction of agricultural products and barrenness of agricultural land, among others.

Studies by some experts have shown significant losses as a result of flaring. Ukegbu and Okeke in their report show that there is about 100% loss in yields in crops cultivated at about 200 meters away from the flare, 45% loss for those cultivated about 600 meters away and, 10% loss for those crops about 1000 meters away from the flare.

[60]C.I. Madueke, "Environmental Protection Prospects for Implementation in Nigerian Petroleum Refineries." in *Petroleum Industry'83,* 55 at 56-57. See also E.C. Udogwu, "Economic and Social Impacts of Environmental Regulation on the Petroleum Industry in Nigeria," in *The Petroleum Industry and the Nigerian Environment* (Lagos: Federal Ministry of Housing and Environment, 1981) 49 at 50-52 [hereinafter Petroleum Industry '81].

[61]O. Adewale, supra note 59 at 9-10.

The report attributed the loss of yields of the crops cultivated in the farm closest to the flare to the high temperature and radiation intensity characteristic of such flares.[62]

2. Water-related Problems

Water in oil producing areas is polluted when wells are improperly abandoned, or waste flows into waterways as a result of improperly designed waste pits. Surface and ground water are also polluted by exhaust emissions from supply vessels used in providing food and other essentials to offshore rigs; by leaking oil and petroleum products; and by chemicals used for corrosion inhibition, oil separation, well stimulation and so on.

3. Oil Spills in Nigeria

Over the years of oil exploration in Nigeria, incidents of oil spills have become a recurring phenomenon. Available data shows that the incidence of oil spills is greatest in the swamp areas of the Niger Delta where most exploratory and producing oil activities are carried out. It is reported that between 1970 and 1980, the country experienced eighteen major spills.[63] A total of 2,005 oil spills which occurred between 1976 and 1986

---

[62]Raimi O. Ojikutu, supra note 37 at 8-9.

[63]See C O. Ikporukpo, "The Management of Oil Pollution of Natural Resources in Nigeria." (1985) 20:3 J. Environmental Management 199. See a comprehensive list at 200.

resulted in the loss of 2,085,280 barrels of crude oil to the environment, out of which only 25.8 per cent (524,945 barrels of crude oil) was recovered.[64]

It must be observed that the above figures are based on the number of reported oil spill incidents. They do not take into account the unreported cases, or cases such as discharges from vessels at sea, or in the course of bunkering operations, or spills occurring in the process of transportation and marketing of petroleum products, the dumping of used oils such as lubricants and grease, and so on[65] which are common features in Nigerian oil operations.

a. Causes

The incidents of oil spills in Nigeria are caused by various factors. Equipment failure[66]or malfunction has resulted to several oil spills. Equipment failure was said to account for 50 per cent of spill incidents in each recorded year.[67]These include corrosion, ruptured flow-line, valve failure, hose failure and so on. Improvement in the technology used in oil exploration and production does not seem to reduce the number of oil spills resulting from equipment malfunctions.

---

[64]Raimi O. Ojikutu, supra note 37 at 8..

[65]Oluwole Akanle, *Pollution Control Regulation in the Nigerian Oil Industry* (Lagos: N.I.A.L.S., 1991) 1 at 2-3.

[66]C.N. Ifeadi & J.N. Nwankwo, "Critical Analysis of Oil Spill Incidents in Nigerian Petroleum Industry" in *The Petroleum Industry and the Nigeria Environment* (Lagos: Federal Ministry of Housing and Environment, 1987) 104 at 108-109.[hereinafter Petroleum Industry '87]

[67]Ibid.

A reputable insider notes that Nigeria's major oil producing states, Rivers and Delta, suffer about three hundred oil spills every year (often covering several miles) which discharge about 2,300 cubic metres of oil.[68]The figures could be higher if minor spills are included.

There have been reported incidents of oil spills caused by well blowouts. Major oil spills in Nigeria involving blowouts were first recorded in the 1970s. The famous "Funiwa V" Texaco oil well blowout[69] was very significant because it resulted in an environmental impact study, which indicated that a grand total of 836 acres of the mangrove swamps were killed as a result of the blowout, representing 45% of the total area surveyed. About 89% of the damaged trees were found to be within three miles of the river mouth in each case.[70]

Oil spills have also occurred during storage and loading operations at terminals. The Forcados terminal spillage of July 6, 1979 has been described as the most noteworthy and the largest single oil spill in Nigeria.[71]

---

[68]Claude Ake, "Shelling Nigeria Ablaze",[Lagos] *Tell* (19 January 1996) 34E. Late Professor Claude Ake was a Nigerian National Merit Award winner and Director of the Centre for Advanced Social Science, Port Harcourt, Nigeria. Ake angrily resigned from an Advisory Committee- Niger Delta Environmental Survey (NDES) to Shell Dev. Co. of Nigeria on environmental impact assessment of the oil company's operations on the Niger Delta region, on account of the judicial murder of Ken Saro-Wiwa and 8 others by the General Sani Abacha led military-junta on 10 November 1995.

[69]Fola Sasegbon, supra note 57 at 369. On 17 January, 1980, the Funiwa V well (owned by Texaco / Chevron) blew-out spilling over 200,000 barrels of crude oil before it was stopped almost three weeks later. The oil spread to all outlying areas near the shore particularly around fish towns and Sangana river. The mangroves were also destroyed, fishes, crabs and periwinkles were killed. The drinking water from the sinking wells and water reservoirs were polluted.

[70]Raimi O. Ojikutu, supra note 37 at 7.

[71]About 23.9 million gallons of oil was spilled into water during the incident. See E.O. Odogwu, "Economic and Social Impacts of Environmental Regulations on the Petroleum Industry in Nigeria", in

Other causes of oil spills include human error, natural causes, acts of third parties, sand cut erosion, accidents and sabotage.[72]

b. Sabotage

The issue of sabotage[73] has become a social problem affecting not only the oil industry but the economic and political life of Nigeria as a nation. Sabotage results from acts of vandalism by third parties, being calculated efforts at disrupting the flow of oil by tampering with or destroying oil installations. Wellheads, tank farms and pipelines containing oil are easily accessible to third parties, as such facilities are usually constructed and placed above ground in Nigeria. All acts of sabotage are preceded by the tort of trespass for the saboteurs or trespassers usually encroach on the right-of way of the pipeline owner/oil operator (who has approval or permit issued by the government).

The incidents of sabotage have affected mostly pipelines. This is probably connected with the fact that acquisition of pipeline right-of-way has led to more disputes and litigation than any other class of oil operation.[74] These disputes arise as a result of the competing interests in land where those pipelines are laid and more especially in

---

Petroleum Industry'83 note 55. Another oil spill occurred on January 17, 1980 at Apoi North 20 in which 280,000 barrels of oil were spilled.

[72]O. Adewale, supra note 59 at 10.

[73]31% of all spillages recorded in Nigeria from 1977-1979 were due to sabotage. See K.O. Oyefolu & O.A. Awobajo, "Environmental Aspects of the Petroleum Industry in the Niger Delta: Problems and Solution", in *The Petroleum Industry and the Environment of the Niger Delta* (Lagos: Federal Ministry of Housing and Environment, 1979) at 145-162.

[74]M. M. Olisa, *Nigerian Petroleum Law and Practice* (Ibadan, Nigeria: Fountain Books, 1987) 145.

situations where inadequate or no compensation is paid by the oil operators (before acquiring pipeline licences) to the occupiers, who are mostly fishermen or farmers.

Many people, especially those in oil producing communities, have shown resentment over the absolute ownership of oil and gas by the Government of Nigeria, which provides no share to the community. The ownership of oil and gas is conferred exclusively on the Federal Government.[75] Section 40 of the constitution expressly affirms that:[76]

> The entire property in and control of all minerals, mineral oils and natural gas in, under or upon any land in Nigeria or, in, under or upon the territorial waters and the Exclusive Economic Zone of Nigeria will vest in the Government of the Federation and will be managed in such manners as may be prescribed by (law).

The Land Use Act,[77]promulgated by the Federal Military Government in 1978, is the main legislation affecting all land but it has not helped in solving the problems of sabotage in the oil and gas industry.

The Act expressly expropriates private real property rights and it vests all lands comprised in the territory of each state in the Governor, who is expected to hold such lands in trust for all Nigerians. It is designed to extinguish all claims to lands by individuals who before the promulgation of the Act could dictate the terms or lease their lands to oil companies which have governmental approval to carry out oil operations on

---

[75]Petroleum Act, 1969, supra note 2, s 1 and the Constitution, supra note 21.

[76]Constitution, ibid at s 40(1).

[77]Land Use Act (Nigeria) 1978, c. 6.

the land. The land owners also negotiated directly with the oil operators on the rate of compensation to be paid to them.

With the promulgation of the Act, the government became the new land owner, with the former land owner occupying the land at the instance and pleasure of the Governor. All lands not occupied by the commencement date of the Act were automatically vested in the Governor, with limited exemptions.

The Governor of a state is empowered by the Act to revoke a right of occupancy or certificate of ownership for overriding public interest.[78] Overriding public interest is defined as " the requirement of the land for mining purposes or oil pipelines or for any purpose connected therewith."[79]This provision affects all lands in Nigeria particularly in the oil producing areas. Section 28(4) also obligates the Governor to revoke a right of occupancy if the land is required for petroleum operations by the Government oil producing company (NNPC) or by a government/private joint venture (which is one of the main arrangements for oil operations in Nigeria) with compensation paid to the former right holder.[80] The implication of these provisions is that the government can expropriate any private land in Nigeria and give it to an oil operator to carry out its operations. The operator may use it for activities which are directly or indirectly related to oil operations. The original owner or occupier as the case may be will only be entitled to compensation.

---

[78]Ibid at s. 22.

[79]Ibid at ss. 28(2)(c) & 28(3(b).

[80]Ibid at s. 29(2).

Compensation is expected to be paid to the persons or community whose use of land would be affected by oil operations (even when such people are just tenants or lessees on the land) and not to the original land owner. Pre-existing law provides that adequate compensation must be paid to the owner of land required for oil and gas operations[81] and this law has not been expressly repealed or modified by the Land Use Act or any other law or regulation.[82] Another problem has been the disagreement on the measure of compensation to be paid. Failure to pay compensation in cases of oil pollution has resulted in several incidents of sabotage in the industry.

The oil operators, relying on the provision of the Land Use Act, are willing and ready to pay compensation to only those persons or communities whose interests are directly affected, leaving the real owners without any compensation in order to avoid paying double compensation. This position denies the original owners the right to their lands. They will not be able to benefit from the land (on reversion) after the oil operations, due to the impact of pollution on such lands.

The usual practice of most oil companies is to withhold payment of compensation until the issue of who is entitled to payment is resolved by litigation or until the claimants come to amicable settlement. This may take a very long time and those whose farmlands and fishing ponds have been destroyed by the pollution may not be patient enough. They would regard the oil operators as evading their responsibility to pay compensation.

---

[81] Petroleum Act, supra note 2 at paragraph 36 of schedule 1 and Regulation 17(1)(c)(ii) of the accompanying Regulations thereof.

[82] See generally, Momodu Kassim-Momodu, "Impact of the Land Use Act on Petroleum Operations in Nigeria" (1990) 8:1-4 J.E.& N. R.L. 291 for detailed history and operation of the Decree.

Some people complain about payment of inadequate compensation by the oil operators or are aggrieved by removal by the government of ten per cent from the compensation that is paid to individuals or communities.[83] These frustrations force the land owners and aggrieved communities to resort to acts of sabotage because they consider the oil operators and the government to be insensitive to their plight in the face of massive destruction of their farmlands and fishing ponds caused by the oil spills.[84]

Another cause of this dissatisfaction is the failure of the government to adequately[85] share oil revenue with the oil producing communities. Only three per cent of oil revenue is set apart by the federal government to address the ecological problems caused by oil operations in the oil producing areas. There are no visible proofs of the use of this money in solving the environmental problems in these areas. The government has continually attempted to suppress[86](by enacting various laws and carrying out military surveillance) the complaints of the oil producing communities without embarking on concrete steps to solving the degradation in those areas.

---

[83]See, Bendel (Edo & Delta) State Lands (Fees) (Amendment) Regulations 1990 Schedule B.

[84]See Criminal Justice (Miscellaneous Provisions) Act (Nigeria) 1975, c. 30, s. 3(1) which provides that "anyone who wilfully and unlawfully destroys, damages or removes any oil pipeline or installations connected therewith, or prevents or obstructs the flow of oil along any such oil pipelines or interferes with any installation connected therewith is guilty of an offence.

[85]Wendy Irvine, "Human Rights, Environmental Racism: The Nigerian Executions and the Case for the Ogoni" (1996) Buffalo Women's J.L. & Soc. Policy 66 at 67. The writer points out that "as the Nigerian government holds all mineral rights, the Ogonis have not received any financial compensation for the exploitation of their land and the disruption of their livelihood as subsistence farmers and fishing people".

[86]The Movement for the Survival of Ogoni People (MOSOP) co-ordinated the activities of their youth in reactions against environmental degradation in Ogoniland, Rivers State, Nigeria. MOSOP was established to defend the environmental and human rights of the Ogoni community where it alleges 30 billion dollars worth of oil has been extracted from ogoni lands since 1938. See Environmental News, West'Legal News 3467 (Released 11-2-95).

A conviction for any acts of sabotage attracts a death sentence or a term of imprisonment not exceeding 21 years.[87]A learned writer has commented on this law and other actions of the Nigerian government by pointing out that, [88]

> In Nigeria's Ogoniland, the military dictatorship of Sani Abacha has worked with Royal/Dutch Shell and other oil concerns to rape the land of resources, showing no evidence of genuine concern for the environment and creating an ever-worsening mess for the entire peoples who inhabit the affected land.

The reactions of some oil companies seem to aggravate the problem of sabotage in the industry, as their nonchalant attitude makes people in these areas organise protests which sometimes end in the destruction of some exposed pipelines. This has affected oil production, as million of barrels of oil are lost in the process and sometimes, operators may spend a long period to repair damaged machines or replaced damaged pipelines.

It is alleged that in 1989, Shell Petroleum Development Company called the Nigerian Mobile Police force into Umuechem, where it was having problems with the people of Umuechem, and blood was shed. Fifteen people were officially reported shot in the single operation but newspapers reported a death toll of eighty people.[89]It is also reported that oil companies bribe state officials to conduct punitive security operations in

---

[87]Petroleum Production and Distribution (Anti-sabotage) Act (Nigeria), 1975, s. 2.

[88]Neil A.F. Popovic, "In Pursuit of Environmental Human Rights: Commentary on the Draft Declaration of Principles on Human Rights and the Environment" (1996) 27 Colum. Human Rights L. Rev. 487 at 489.

[89]Claude Ake, supra, note 68. Ake also alleged that while degrading the environment, Shell and the other Petroleum multinationals in Nigeria formally discouraged resistance against their misdeeds. He cited an instance where Professor Jaja Ohinwa, a former University Vice Chancellor [President] and spokesperson for Obagi Community was charged with murder and detained indefinitely.

the oil producing areas.[90]The oil companies (especially Shell Petroleum Development Company Ltd) have however denied these allegations.[91]

The incidents of sabotage can only be stopped by a better relationship amongst the government, oil operators and the oil producing communities. Some basic infrastructure. which is presently lacking in this area, should be provided. The government and oil operators should be aware that it is their responsibility to develop and pay adequate compensation to those whose properties are destroyed as a result of oil operations. The government should increase the oil revenue allocations towards control and reclamation of lands that have been destroyed by oil operations. A better access to judicial review (e.g. nuisance) may also help to ameliorate this problem.

Before making recommendations on how these problems can be prevented and/or controlled, it is necessary to first of all examine the effects of oil spills in Nigeria.

c. Effects

The government has acknowledged that oil spills have begun to constitute a very serious danger to the inhabitants of oil producing areas.[92] There is an urgent need to address

---

[90]"Terror at Umuechem" [Lagos] *AM News* (8 January 1996) 1.

[91]Shell Petroleum Nigeria Ltd, "*Shell in Nigeria: Of Problems and Progress*" (June 1995).

[92]Federal Republic of Nigeria, *Fourth National Development Plan, 1981-1985*(Lagos: Federal Ministry of National Planning, 1980) 129.

critically the effects of these environmental problems on humans and the environment, in order to control and prevent the serious health hazards caused by oil spills.[93] Several reported cases of respiratory disorders, cancer, asthma, and birth deformities in the oil producing areas in Nigeria have been attributed to the prevalence of oil spills in these areas.[94]

Numerous speculations exist that the various diseases suffered by people in the oil producing areas are caused by the consumption of some aquatic organisms which might have become affected by hydrocarbons discharged during oil spills abound. According to one legal commentator, the untimely death of several people in oil producing areas is an aftermath of oil spills.[95]

One of the immediate results of oil spills, often aggravated by the riverine nature of much of the producing region, is the widespread pollution of rivers, creeks, ponds, and wells which are the usual sources of water for drinking and general domestic use in the rural Niger Delta. This problem will be better appreciated when it is recalled that only a negligible number of communities in Nigeria outside of some urban areas have access to potable water.

---

[93]O. Olusi, "Human Health Hazards Associated with Petroleum Related Pollution" in *Petroleum Industry'81* supra note 60 at 195.

[94]"Chevron Faces Nigerian Threat Over spill Protest", supra, note 90 at 4.

[95]J. Finine Fekumo, "Civil Liability for Damages Caused by Oil Pollution" in J.A. Omotola, supra note 6, 254 at 267-68. The writer, citing the Texaco Oil Blow-out Report, stated that over 180 persons in one of the affected villages in the "Funiwa V" oil spill died two months after the spill.

Whenever there is a spill, rivers, beaches and other marine habitats are covered with oil slicks and dotted with dead fish.[96] This affects fishing which is the main occupation of the people in the oil producing states of Nigeria. A spill deprives the people of their means of livelihood, and creates psychological effects on the people who become idle and in severe cases may have to relocate.

Soil is also affected, depending on the level of contamination. Where contamination is relatively low, the soil could be degraded by microbial activities, especially because of the paraffin nature of Nigerian oil. However, where the spill and the accompanying pollution are more serious, soil becomes less fertile because nutrients essential to plant growth become scarce, while those that are toxic to plants become more available.[97] The effect on soil microorganisms may persist for several years, unless the soil is rehabilitated. The method of rehabilitation used no doubt affects the length of the soil revival period. Most people in these areas are farmers and any damage to the soil will affect farming for some years. The farmers are rendered unemployed and left with large economic losses since their plants including economic crops are affected.[98] Oil spills also reduce, if not totally destroy the recreational value of beach areas.

---

[96]M.A. Ajomo, supra note 51 at 11.

[97]C.T.L. Odu, "Oil Pollution and the Environment" (1977) 3 Bulletin of the Science Association of Nigeria at 282-289.

[98]P.D.S. Kinako, "Short-term Effects of Oil Pollution on Species Numbers and Productivity of a Simple Terrestrial Ecosystem" (1981) 26 Environmental Pol. (Series A) at 87-91. The writer states that petroleum pollution reduces the productivity of plants in the area by as much as 70 per cent.

Unlike the Nigerian situation, where any money meant for payment of compensation is diverted, large sums of money are ordinarily expended on clean up operations that under normal circumstances, would have been invested in the expansion of operational facilities and the execution of other projects by the polluters.

Presumably, the current Nigerian situation makes voluntary cleanup unlikely and thus the need for legislation. In the following section, I will describe the existing regulatory framework in the operation of the oil and gas industry.

E. LEGISLATIVE FRAMEWORK FOR ENVIRONMENTAL REGULATION OF OIL AND GAS ACTIVITIES

Environmental degradation, resulting from oil operations, has tremendous effects on humans and the environment, which makes a call for effective regulation and the enforcement of the existing regulations of petroleum operations timely and expedient. Nigeria's failure to effectively make regulations and then to enforce them could have extremely serious long term consequences. Environmental degradation knows no boundaries, does not respect persons and affects broad regions.

Well-defined environmental regulation as an instrument of social policy concerned with the consequences and effects of oil and gas activities is necessary, especially in a country like Nigeria, to ensure that "public interest" prevails in the face of the overpowering force of more knowledgeable and better equipped private interest

holders. To leave control and regulation of oil operations to the whims and caprices of oil companies, whose preoccupation. is with efficiency and profit is not good enough.

The environmental regulation as provided for in the existing petroleum and environmental legislation will now be examined to see how the various problems associated with petroleum operations are controlled and/or prevented. For the purposes of this examination, the various legislative styles used in Nigeria will be analysed. Three main legislative styles can be deduced from an examination of the environmental regulation in Nigerian petroleum and environmental laws. These styles are,

(a) hortatory
(b) discretionary, and
(c) command and control

1. The Hortatory Approach

Hortatory legislation adopts provisions without binding effect or simply to encourage action rather than to command it.[99] It supports flexibility in the legislation and when used in environmental regulation of oil operations, the stipulations encourage oil operators to comply with the regulation, but no sanctions are provided for their noncompliance.

[99]Lee Hargrave, "Statutory and Hortatory Provisions of the Louisiana Constitution of 1974" (1982) 43:3 Louisiana L. Rev. 647.

The control of spills in oil operations in Nigeria is regulated by Regulation 25 of the Petroleum (Drilling and Production) Regulations, 1969,[100] which obligates a holder of an oil exploration and/ or oil prospecting licences to:

> Adopt all practicable precautions, including the provision of up-to-date equipment approved by the Chief Petroleum Engineer [Department of Petroleum Resources], to prevent the pollution of inland waters, rivers, water courses, the territorial water of Nigeria or the high seas by oil mud or other fluid or substances which might contaminate the water, banks or shore line or which might cause harm or destruction to fresh water or marine life, and where any such pollution occurs or has occurred, will take prompt steps to control and, if possible, end it.

The oil operators are implored or encouraged to prevent oil pollution and "if possible end" any pollution that might occur during their oil exploration and production. There is no express provision stating what will happen in the event of failure to comply with this regulation.

This leaves unresolved the question of where responsibilities lie for ending any spills which may be impossible for an oil operator to control or end? There are no provisions in this regulation or any other law or regulation presently in force in Nigeria, stating who becomes responsible for ending spills of this nature or in situations where the person or oil operator responsible for a spill is not immediately. Regulatory agencies have no mandate to carry out clean up or pollution control activities as might be possible in other jurisdictions.[101]

---

[100]Petroleum (Drilling and Production) Regulations, 1969 in Burrows Company, *Basic Oil Laws and Concession Contracts, South and Central Africa (Original Text)*, Supplement No. 62 at 51. [hereinafter Burrows Company]

[101]See Oil and Gas Conservation Act, R.S.A. 1980, c. O-5, as am. 1994, c. 26 at s. 85. The Alberta Energy and Utilities Board (EUB) is obliged to take any necessary steps to control an oil spill and to recover its expenses from the polluter (if known).

Under Regulation 36, oil operators are enjoined to carry out their operations in a proper and workman-like manner and to take reasonable steps to among others:

> Control the flow and to prevent the escape or avoidable waste of petroleum discovered in or obtained from the relevant area,
> prevent damage to adjoining petroleum-bearing strata,
> prevent the escape of petroleum into any water, well, spring, stream, river, lake, reservoir, estuary or harbour, and
> cause as little damage as possible to the surface of the relevant area and to the trees, crops, buildings, structures and other property thereon.

All oil operators are obliged to ensure the drainage of all waste oil, brine and sludge or refuse from storage vessels, boreholes and wells into proper receptacles constructed in compliance with safety regulations. The Minerals Oils (Safety) Regulations, 1963[102]made pursuant to the Mineral Oils Act, 1962 but saved under the Petroleum Act, 1969[103] also contain hortatory provisions. The regulations provide that in the absence of any special provision, "all drilling, production, and subsequent handling of crude oil and natural gas will conform with *good oilfield practices.*"[104]

No sanctions are provided for noncompliance[105]in these provisions and it appears that the oil operators may refuse to end the spills or any other pollution without being held liable. Professor Akanle[106] has posited that the directory and general nature of the

---

[102]Petroleum Act, supra, note 2 at schedule 4.

[103]Ibid at s 9.

[104]The Mineral Oils (Safety) Regulations, 1963, supra, note 2 at Reg. 7.[emphasis mine]

[105]O. Adewale, "Legislative Considerations in Monitoring Water Quality" (1991) 6 Justice, 75 at 81.

[106]Olawole Akanle, supra, note 63 at 13.

provision make compliance by the oil operators voluntary and control of pollution difficult.

Every oil operator is enjoined to use "approved methods and practices" acceptable to the Department of Petroleum Resources (DPR) for the production of crude oil or natural gas from any pool, or reservoir[107] and the confinement of petroleum in a receptacle.[108]Oil companies are not reprimanded in the event of the noncompliance and this is very significant as more than 50 per cent of the incidents of oil spills in the oil industry in Nigeria are caused by equipment failure[109] which may be connected with the attempts by various operators to reduce the cost of production to the detriment of the environment. Use of modern equipment should be incorporated into the concept of "approved methods and practices" and a list of the approved equipment should be made available to oil operators.

2. The Discretionary Approach

This is a style of legislation where the enabling law and accompanying regulations grant broad authority to the regulatory agencies or administrators to set standards and provides for sanctions in the event of noncompliance with the standards.

---

[107]Petroleum (Drilling & Production) Regulations, 1969, supra, note 79 at Reg. 38.

[108]Ibid at Reg. 39.

[109]C. N. Ifeadi & J. N. Nwankwo, supra note 64.

The Petroleum Act, 1969, which can aptly be described as the first comprehensive substantive legislation on petroleum operations in the country, contains very few provisions regarding environmental matters. Section 8 of the Act grants powers to the Minister to "make regulations for the prevention of pollution of water courses and the atmosphere." This section vests discretionary powers on the Minister, which the Minister may or may not exercise. The determination of "approved methods and practices" to be used in oil exploration and exploitation by oil companies is completely left to the Department of Petroleum Resources (DPR)[110]-the agency to whom the Minister delegates his powers under the Act.

The Department may decide to establish different standards for oil operators or to set no standards at all and considering the limited human and material resources at its disposal, setting of standards covering all areas of oil operations, may be impossible. The DPR is also empowered to give directions which it considers necessary to ensure proper exploitation of petroleum and to encourage good conservation practices in any lands granted to the oil operators.[111]

Clause 24 of Schedule One to the Petroleum Act also grants a discretion to the Minister to revoke any oil prospecting licence or an oil mining lease "if in his opinion the licensee or lessee has failed to comply with any provision of this Act or any regulation or direction given thereunder." There is no evidence of the exercise of this power to revoke

---

[110]Petroleum (Drilling and Production) Regulations, 1969 supra, note 79.

[111]Ibid at Reg. 43.

any licence or lease of any oil companies, in spite of reported cases of violation of the provisions of the Act and the environmental degradation caused by the industry's activities. It is observed that no specific time limit is stated for the exercise of these discretionary powers and that the regulators cannot be legally held liable for failing to exercise any discretion. It is submitted that granting a considerable discretion to the regulators (whether to the Minister or the DPR) may only permit an extensive process of bargaining with oil operators in the formulation and implementation of regulations. This will not, under the present circumstances, make the desired changes in ensuring effective control of pollution in the industry.

The Associated Gas Re-injection Act, 1979[112] was the Government's expressed response to the outcry against gas flaring[113] (which has caused air and thermal pollution) in Nigeria. Any oil company which, after 1 January 1984 flared gas without the permission of the Minister, was liable to forfeit all its concessions.[114] The legislation requires oil operators to submit detailed preliminary programmes and plans for implementation of gas re-injection[115] in their various fields. The Minister might also order the withholding of any entitlement of the offender toward the cost of completion or implementation of a desirable re-injection scheme or the repair or restoration of any

---

[112] Associated Gas Re-injection Act 1979 (Nigeria), 1990, c. 26.

[113] Between 1986 and 1987 alone, over 9 billion SCF (Standard Cubic Feet) of associated gas was flared by oil companies in Nigeria. See M. Kassim-Momodu, **Comment on Nigeria** (1988) 6:2 J.E.N.R.L. 115.

[114] Associated Gas Re-injection Act, supra, note 112 at s 4(1).

[115] Ibid at s 3(2).

reservoir in the field in accordance with good oilfield practices. The Minister was also vested with powers to issue certificates to any oil company to continue to flare gas if such company pays the sum prescribed by the Minister.[116]

Due to the inability of the oil companies to comply with these 'stringent' regulations, the Minister made the Associated Gas Re-injection (Continued Flaring of Gas) Regulation, 1984[117]. The 1984 Regulation provides that the Minister may allow gas flaring:

> (a) where more than 75 per cent of the produced gas is effectively utilised or conserved;
> (b) where the produced gas contains more than 75 per cent impurities, rendering it unsuitable for industrial purposes,
> (c) where an ongoing utilisation programme is interrupted by equipment failure, provided that such failures are not considered too frequently by the Minister and that the period of any one interruption is not more than three months;
> (d) where the ratio of the volume of gas produced per day to the distance of the field from the nearest gas line or a possible point is less than 50,000SCF/Km. Provided that the gas to oil ratio of the field is less than 3,500 SCF/bbl, and that it is not technically advisable to re-inject the gas in the field;
> (e) where the Minister, in appropriate cases as he may deem fit, orders the production of oil from a field that does not satisfy any of the conditions specified in these regulations.

It is observed that an oil company which has the ability to conserve 75 per cent of produced gas, should either seek ways of re-injection the remaining 25 per cent or produce gas in proportion to its gas re-injection ability instead of polluting the atmosphere. The implication of these exemptions is that more than 86 out of 155

---

[116]Ibid.

[117]Associated Gas Re-injection (Continued Flaring of Gas) 1984 (Nigeria) 1990, c. 350.

oilfields[118] are allowed to flare 'excess' produced gas indiscriminately, with the remaining oilfields subject to the seemingly insignificant penalty of a prescribed sum by the Minister.

Oil companies would rather pay the prescribed fee for gas flaring than incurring more costs in the re-injection of gas, which according to Chevron, would cost the company $1 million, while switching from water to gas re-injection would cost $56 million.[119]This attitude, which is prevalent among oil operators in Nigeria, defeats what can be described as the intention of the legislator of this regulation. The technique used is based on the principle that if the government charges an operator for disposing of waste, the operator will find ways of reducing the volume of wastes and that the higher the charges, the stronger the incentive the operator will have to find a less damaging method of disposal. However, in Nigeria, this result is not achieved, as it appears cheaper for the operators to pay the fees and to continue to flare the gas than to institute conservation measures.

With the emergence of global concern for the environment in the 1980s and the awareness generated by an incident of the dumping of toxic waste at Koko, Delta state, by an Italian company in 1988, the Nigerian Government at last promulgated (what was supposed to be the most comprehensive environmental legislation) in the form of the

---

[118]Y. Omorogbe, "Law and Investor Protection in the Nigerian Natural Gas Industry" (1996) 14:2 J.E.N.R.L. 179 at 181.

[119]Ibid.

Federal Environmental Protection Agency Act, 1988 (FEPA Act).[120] Section 1 of the FEPA Act provides for a body to be known as the Federal Environmental Protection Agency (FEPA), a body corporate, which is charged as the sole implementing organ with powers amongst others to "advise the federal government on national environmental policies and priorities and on scientific and technological activities affecting the environment, and so on."[121]

The Agency was originally placed under the Federal Minister of Housing and Environment, but has now been made an integral part of the Presidency.[122] The FEPA Act vests in FEPA wide powers to:[123]

> Establish such environmental criteria, guidelines, specifications or standards for the nation's air and interstate waters as may be necessary to protect the health and welfare of the population from environmental degradation.

FEPA is also empowered to "establish such procedures for industrial or agricultural activities in order to minimise damage to the environment from such activities."[124]Most significantly, it is obligated to:

> maintain a programme of technical assistance, to bodies(public or private) concerning implementation of environmental criteria, guidelines, regulations and standards and monitoring enforcement of the regulations and standards thereof

---

[120]FEPA Act, supra note 36.

[121]Ibid at s 4.

[122]Federal Environmental Protection Agency (Amendment) Decree (Nigeria), 1992, c. 59.

[123]FEPA Act, supra note 36 at s 5(g).

[124]Ibid at s 5(l).

These provisions empower the Agency to prescribe standards for the control of environmental pollution and degradation including, but not restricted to, water quality,[125] air quality and atmospheric protection,[126] noise,[127] and hazardous substances.[128]

An individual who violates any standards set by FEPA will, on conviction, be liable to pay a fine of 100,000 naira, or serve a term of ten years' imprisonment or both. Where the offence is committed by a corporate body, a penalty of 500,000 naira and an additional fine of one thousand naira for every day the offence subsists is imposed.[129]Section 20(4) holds any official in charge of a violating corporate body at the time the offence was committed also liable, unless he can prove that he had no knowledge of the offence or that he exercised all due diligence to prevent the discharge.

The owner or operator of a vessel or facility from which a discharge occurred is also liable for the costs of removal, restoration or replacement of natural resources destroyed as a result of the discharge, and "costs of third parties in the form of reparation, restoration, restitution, or compensation as may be determined by the Agency."[130]The owner or operator is however entitled to exonerate himself from other liabilities if he can

---

[125]Ibid at ss 15 & 16.

[126]Ibid at ss 17 & 18.

[127]Ibid at s 19.

[128]Ibid at ss 20 & 21.

[129]Ibid at s 20(1) & (2) & (3). The current exchange rate is eighty naira to one US dollar as at August 1997.

[130]Ibid at s 21(1)(a) & (b).

prove that the discharge was caused entirely by a natural disaster, or an act of war or by sabotage.[131]

Under section 20(2), the discharger is required to give immediate notice of the discharge to FEPA, to commence immediately 'clean up operations' and promptly comply with other directions as the Agency may prescribe. FEPA is obligated under section 20(5) to determine what amounts to "hazardous substances," which it has defined as follows:

> (a)any material that poses a threat to human health and/ or the environment typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive, or
> (b) any substance designated by the Agency to be reported if a designated quantity of the substance is spilled in the waters of Nigeria or if otherwise emitted to the environment.[132]

Oil is not specifically mentioned among the hazardous substances, but some waste from the refining process such as slop oil, emulsion solids, tank bottoms(leaded) are. A close reading of section 20 and the definition of pollution in section 38 seems to suggest that the Act is not entirely against the discharge of hazardous substances through sources like oil spills if it is within "acceptable limits." A polluter is not liable to face criminal prosecution if he is granted a permit or authorization to discharge any hazardous substance.[133]

---

[131]Ibid.

[132]FEPA, "Guidelines and Standards for Environmental Pollution Control in Nigeria"(1991).

[133]FEPA Act, supra note 36 at s 20(1).

FEPA has enacted two different regulations relating to oil pollution matters pursuant to the powers vested in it by the FEPA Act. These are the National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 1991[134] and the National Environmental Protection (Effluent Limitation) Regulations, 1991.[135]

The Pollution Abatement Regulations prohibit the release of any hazardous or toxic substances into air, water or land of Nigeria's ecosystem beyond the approved limits. Spilling of oil into public drains, rivers, lakes, seas or underground injection without a permit issued by FEPA or any other licensed organization is also banned.[136] A violator, whether an individual or a corporate body, is liable on conviction to pay penalties specified in the enabling Act.[137]

The Effluent Limitation Regulations establish effluent limitations for all categories of industries including the petroleum industry, where it specifically allows oil and grease content in brine and other production waste of not more than 10 mg/ litres for discharge into inland waters. Corporate violators on conviction will pay a fine of 500,000 naira while a fine of 100,000 naira or a term of imprisonment of two years or both is imposed on individual violators.

---

[134]Hereinafter Pollution Abatement Regulations.

[135]Hereinafter Effluent Limitation Regulations.

[136]Pollution Abatement Regulations, 1991, at Reg. 15 (2). See also Regs. 7 & 8 where restrictions are placed on discharge of effluents with constraints beyond specified limits and provides for contingency planning by all industries and facilities against accidental release of pollutants.

[137]FEPA Act, supra note 36 at ss 35 & 36.

The FEPA Act provides for no limitations within which FEPA is to exercise the enormous discretionary powers vested in it. It is conceded that similar bodies in other jurisdictions are also vested with similar powers but unlike these bodies. FEPA has several administrative and legislative limitations, including the jurisdictional problems in oil pollution matters which were analysed in our discussion on the problems facing environmental regulation in developing countries.[138]

FEPA operates under the same conditions as the federal civil service and it has difficulties finding the right employees. This is due to poor remuneration and unfavourable employment conditions in the federal civil service. It lacks experienced and knowledgeable manpower to execute its functions. In a task of this magnitude highly technical staff is indispensable. Absence of access to vital informational facilities and experienced technical staff has thwarted the efforts of the FEPA. Like most military decrees or laws in Nigeria, judicial review or any other form of administrative remedy is not available against the decisions of FEPA.

3. The Command and Control Approach

This implies setting out a standard or rule and then stipulating a penalty for its violation. The legislation is designed to obligate oil operators to behave in a specified manner (the command) or be liable to suffer a stated penalty (control). This concept is premised on

---

[138]See page 12.

the facts that there will be enforcement or compliance proceedings if the stipulated rule or level of discharge is exceeded.[139]

Although, no specific sanctions are stated in the Petroleum (Drilling & Production) Regulation, 1969, the Minister is empowered to revoke any oil prospecting license or oil mining leases if a holder of such license or lease fails to comply with the conditions or provisions of the Petroleum Act and accompanying regulations as stated in Regulation 24 of Schedule one to the Petroleum Act, 1969. The Petroleum Refining Regulations, 1974[140] contains provisions for the control of oil pollution, especially oil spills. Regulation 38 specifically provides that every spillage of crude, products or chemicals inside a refinery will immediately be reported[141] in writing to the Director [DPR] within seven days of the occurrence, describing the cause and nature of the spillage, the amount and method of estimating it and precautionary measures taken to prevent such spillage in the future.

The manager of a refinery is obligated to adopt "all practicable precautions," including the provision of such up-to-date equipment as may be specified by the Director to prevent the pollution of the environment by petroleum or petroleum products[142] and where such pollution occurs to take prompt action to control or if possible end it. The

---

[139]M. Rankin, "Economic Incentives for Environmental Protection: Some Canadian Approaches" (1991) 1 J.E.L.&P. 241 at 242-244.

[140]Petroleum Refining Regulations, (Nigeria) 1974, Legal Notice 45. See Burrows Company, supra note 97 at 69.

[141]Monthly and annual reports are to be forwarded by the manager to the Director of DPR regularly. See Ibid at Regs. 19-22.

[142]Petroleum Refining Regulation, ibid at Reg 43.

sanction for noncompliance by the manager is a fine of one hundred naira or a term of imprisonment of six months on conviction.[143] These penalties were inadequate even at the time when they were fixed. These regulations do not provide for programme spillages (where oil spills are allowed under certain conditions) and what should happen if such spillages result in environmental degradation.

Terms such as "all practicable precautions, "and "good refining practices" are not defined in the Petroleum Act, 1969 or in the accompanying regulations. The Petroleum Regulations, 1967,[144]though, made pursuant to section 3 of the Petroleum Ordinance, 1916, were saved under section 14(2), schedules three and four, subsection four of the Petroleum Act, 1969 and contain some provisions which attempt to control and or prevent the incidence of oil spills and other environmental problems. Discharge or escape of petroleum into the waters of any port during the process of loading or unloading of a ship at any harbour is prohibited.[145] Regulation 65 provides that an oil tank should be set in a nine-inch thick chamber of a waterproof concrete wall to prevent any leakage from the tank into local drains or waterways.

Petroleum will not be allowed to escape into any inlet or drain communicating with a sewer.[146]Periodic inspections of all underground petroleum storage tanks in order

---

[143]Ibid at Regs. 43(4) & 45(c).

[144]Petroleum Regulations, 1967 (Nigeria), 1990, c. 350.

[145]Ibid at Reg. 67.

[146]Ibid at Reg. 104.

to prevent leakages are mandated.[147]An oil operating license or lease will be revoked as penalty for noncompliance and the regulation specifically provides that a breach of any of the regulations attracts a fine of an amount not exceeding one hundred naira or a term of imprisonment for a maximum of six months.[148]

The Oil in Navigable Waters Act, 1968[149] was widely hailed, as it legally provides for the control of oil spills and other environmental hazards. It prohibits the discharge of certain types of oil into certain sea areas.[150] No discharge of oil or oily mixture into Nigerian waters from any vessel, place on land or any apparatus used in transferring oil from or to any vessel into the "whole of the sea within the seaward limits of the territorial waters of Nigeria is allowed."[151] The owner or master of the ship will on summary conviction pay a fine not exceeding two thousand naira.[152]

The Minister, in exercise of the powers granted him under the Act, has made regulations to adequately provide for equipment to be fitted in ships,[153] recording of oil discharge,[154] recording of oil transfer[155] and the precautions to be taken when loading.

---

[147]Ibid at Reg. 37(5)(I) & (ii).

[148]Ibid at Reg. 104.

[149]Oil in Navigable Waters Act 1968 (Nigeria), 1990 c. 337.

[150]Ibid at s. 3.

[151]Ibid at s. 6.

[152]Ibid.

[153]Ibid at Reg. 2.

[154]Ibid at Reg. 4.

[155]Ibid at Reg. 5.

bunkering or discharging oil.[156] Transferring oil at night is prohibited and a fine varying from two hundred to one thousand naira will be imposed on conviction.[157] Keeping of false or misleading records attracts a term of imprisonment not exceeding six months.[158]

This Act has been criticised for the numerous defences which it contains. It allows the discharge of oil into water under certain circumstances. A polluter will not be held liable if he can establish that the discharge was for the purpose of securing the safety of the vessel or preventing damage to any vessel or cargo or to save lives.[159] It is also a complete defence if the polluter can prove that the discharge was:

> (a) as a result of damage to a vessel and practical steps were taken to prevent or stop it,[160]
> (b) caused by reason of leakage and the leakage was not due to any want of care[161]
> (c) not due to unreasonable [lack of] care and all reasonable steps were taken to stop or reduce the discharge,[162]
> (d) caused as a result of sabotage.[163]

The Nigerian Criminal Code[164] makes it an offence for any person who "corrupts or fouls the water of any spring, stream, well, tank, reservoir or place, so as to render it unfit for

---

[156]Ibid at s. 4.

[157]Ibid at ss 7, 9 & 10.

[158]Ibid.

[159]Ibid at s. 4(2)(b).

[160]Ibid at s. 4(3).

[161]Ibid at s. 4(2).

[162]Ibid at s. 4(3)

[163]Ibid at s. 4(4).

[164]Nigerian Criminal Code 1958, c. 42.

the purposes for which it is ordinarily used" and provides that the person will on conviction be liable to a term of imprisonment for up to six months.[165] Section 247 also imposes a similar term of imprisonment on any person who 'vitiates' the atmosphere in any place so as to make it noxious to the health of persons or who does any act which is, and which he knows or has reason to believe to be, is likely to spread the infection of any disease dangerous to life, whether human or animal.

This command and control legislative style in environmental regulation is also applied in the Harmful Waste (Special Criminal Provisions) Act, 1988.[166] This Act, which was a quick reaction to the Koko toxic waste incident in 1988, can be applied to oil pollution, which falls within the definition of "toxic" in the Act. The Act prohibits the collection, keeping or dumping of harmful waste anywhere within the territory, territorial waters, the contiguous zone or the exclusive economic zone of Nigeria or its inland waterways.

Section 6 provides that anyone found contravening the provision of the Act will, on conviction, "be sentenced to imprisonment for life," forfeit to the FMG any carrier used in the transportation or importation of the harmful waste, and any land on which the waste was deposited or dumped. Corporate bodies, including any director, manager, secretary or any other similar officer of such corporate bodies, will also be held liable if

---

[165]Ibid at s. 245.

[166]Harmful Waste (Special Criminal Provisions) Act 1988 (Nigeria) 1990, c. 165.

found guilty of contravening the provisions of this Act.[167] A critique of the effectiveness or a lack thereof of these approaches will be examined in part F of this chapter.

4. The Reactive/Preventive Approaches

A closer look at the various environmental and oil and gas laws and regulations in Nigeria show that apart from the above legislative approaches, the existing laws and regulations seem to emphasize a reactive, responsory approach.

The emphasis of the legislation and accompanying regulations is after-the-spill or what can be termed the reactive approach. Here, account of potential negative environmental effects is only taken when the factual existence of their effects is established with a degree of certainty, at which point the decision-maker or regulators may react to the problem. What this means is that regulators only react or attempt to control pollution after the occurrence of a spill or other related events. Efforts are not made to ensure that pollution does not occur. In most instances, proof of damage is required (if at all) before any action can be taken. Unfortunately, it is often very difficult to ascertain with scientific certainty the immediate or long-term effects of a spill or any other associated environmental problem.

In Nigeria, oil companies, pursuant to this approach, have contracted a company known as "Clean Nigeria Associate" to carry out clean up of spills when they occur.[168]

---

[167]Ibid at s. 7.

[168]Raimi O. Ojikutu, supra, note 39 at 145.

This cooperative response arrangement for the control of medium to major oil spills is further evidence of the use of the reactive approach in oil operations in the country.

No emphasis is laid on the need to prevent pollution or even minimize its occurrence by or providing the needed facilities that will help in preventing pollution. It is sad that gas flaring is not regulated even to the extent of using other technologies that will minimize the effects of emissions from such flares on the people.

The environmental impact assessment process is not developed nor does the licensing process include any preventive conditions. A further discussion will be carry out on the preventive and reactive approaches in the following section.

F. A CRITIQUE OF THE VARIOUS LEGISLATIVE APPROACHES

The legislative approaches discussed above have their defects especially in the Nigerian context in which they are being applied. The hortatory approach would serve to encourage oil operators to reduce impacts of their operations on the environment, to enhance their public image and to reduce the likelihood of (and perhaps the need for) enforcement action. It appears in the Nigerian oil and gas industry, the use of this approach leaves the operators to their own devices and most often the operators will not regulate themselves or, if they do so, not as stringently as an effective regulator would. The approach is further aimed at encouraging the industry operators to participate in more ambitious and innovative activities leading to improvements in the quality of the natural environment while at the same time getting the needed revenue for the government and

making profit for themselves. Unfortunately, these ambitious objectives have not been achieved.

Ordinarily, this approach would have enabled the government to move its obviously finite resources away from costly enforcement regimes. However, considering the attitudes of oil operators and the resultant degradation in the industry, it is submitted that the use of this legislative style should be discouraged. Leaving compliance with environmental regulation to the whims and caprices of oil operators will not improve the present poor condition of environmental protection. Two learned writers supporting this submission stated that[169]

> If no general pattern of enforcement action exists, it would be surprising indeed to find an industry undertaking to comply voluntarily with the legislation. Firms which comply with a particular enactment without any expectation of enforcement will soon find themselves at a disadvantage vis-a-vis their competitors who may ignore the same legislation with impunity.

The hortatory approach is not bad in itself, but can function only if the operators are responsive to the environmental protection objective.

The discretionary approach in the regulation of a sophisticated industry of this nature is welcome, considering the special and sometimes peculiar knowledge required in each situation. The difficulty with the use of this legislative approach in Nigeria is the fact that absence of infra structural requirements, manpower and other problems hinder the regulatory agencies from performing their functions including the setting of different

---

[169]Murray Rankin & Peter Finkle, "The Enforcement of Environmental Law: Taking the Environment Seriously" in Peter Z.R. Finkle & Alastair R. Lucas ed *Environmental Law in the 1980s: A New Beginning* (Calgary: Faculty of Law, The University of Calgary, 1981) 169 at 171.

standards in the industry. Any agency which is not independent can hardly take or enforce regulations strictly.

The command and control approach gives the impression of a tough government or regulatory agency able and willing to deal with polluters by the use of its coercive powers to achieve its desired goals. This is exemplified by the great emphasis on penalties such as fines and in some cases, withdrawal of operating licenses. This posture is negated by the practice where a "sacred cow" status is conferred on oil operators by the Nigerian military government because oil operators produce the nation's main source of revenue.

Most of these controls including penalties, are rarely invoked. Decisions to prosecute have to be approved by the federal government. The meagre fines imposed for the violation of environmental law and regulations are not effective sanctions to deter a recalcitrant polluter who is bent on profit-making to the detriment of environmental protection. The absence of opportunities for private prosecution, judicial attitudes[170] and other limitations which were earlier discussed provide no solace. It is submitted that effective enforcement of command and control environmental regulations will tremendously assist in reducing environmental degradation presently experienced as a result of oil operations in Nigeria.

The reactive approach to oil spills, gas flaring or other environmental problems is similar to supplying medicine after death for the public and the environment may have

---

[170]See page 26.

been adversely affected before the measures are ever applied. In oil spill incidents, the emphasis is on clean up operations, which are never effective enough to remove all the spilled oil but only assist in minimising the impact of the pollution. Most times, the techniques to remove the oil can disturb the physical equilibrium which causes beaches to retreat and dunes to be eroded.[171] Mechanical solutions in clean up re-release stranded and flushed hydrocarbons into the water column[172] and clean up chemicals and other cleaning procedures could themselves constitute environmental problems.

This approach also hinders the successful prosecution of pollution related matters in courts when there is a non-compliance by any operator with the regulatory agency's directives following a spill. In such cases, the burden of proof is on the regulator who alleges environmental harm as a result of the operator's activity or inactivity. The legal effect of this onus of proof usually favours the polluter. An operator can always argue that it has successfully carried out a clean up operation and it is not responsible for any other damage. Absence of contrary scientific evidence will exonerate the operator. Reynolds has stated that:[173]

> (a) the onus of proof on the challenging party [regulator] favours the proponent [polluter] in that the degree of scientific certainty required to meet the legal standard of proof may be difficult to achieve in a legal context, with the level of advantage given to the proponent directly related to the legal standard which must

---

[171]C. Campbell-Mohn, "Petroleum" in C. Campbell-Mohn, B. Barry & J. W. Futrell, eds., *Environmental Law From Resources to Recovery* (St Paul, Minnesota: West, 1993) c.15, 695.

[172]Ibid.

[173]Larry A. Reynolds, "Scientific Uncertainty and Environmental Decision-Making: An Interface of Science and Law" (Paper presented to the Canadian Bar Association Seminar "Emerging Issues in Environmental Law" at Ottawa, Ontario, 29 April 1994) 21.

be satisfied.
(b) if there is sufficient scientific uncertainty so that the legal burden of proof is not satisfied, the decision will favour the proponent of the activity by default.

Considering the flaws associated with the reactive approach to environmental protection, it is submitted that the emphasis should be on the use of the preventive approach as the effects of a spill or any other environmental harm can be enormous. Under the preventive approach, emphasis is on the prevention of acts which may likely lead to pollution in any form. The importance of the precautionary approach is to:

> Ensure that a substance or activity posing a threat to the environment is prevented from adversely affecting the environment, even if there is no conclusive scientific proof linking that particular substance or activity to environmental damage. The precautionary principle is a guiding principle. Its purpose is to encourage - perhaps even oblige - decision makers to consider the likely harmful effects of their activities on the environment before they pursue those activities . . . Proponents of the precautionary principle, as a new and progressive policy instrument, strive for a reversal of, or at the very least, a shift away from the current position whereby polluters can continue to discharge a wide variety of substances into the biosphere.[174]

Legal writers[175] have observed that major contamination or degradation may wipe out entire species, if not an ecosystem. They argued that even in those situations in which full restoration is feasible, it is often beyond the financial means of the current occupier of the land or the person who has created the damage. It is more expedient to have effective preventive regulation without doing away completely with remedial regulation, since pollution may not be prevented entirely. The preventive approach makes economic

---

[174]James Cameron & Juli Abouchar, "The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment" (1991) 14:1 Boston Coll. Int. & Com. L. Rev. 1 at 2.

[175]Andrew J. Roman & Kelly Hoey, "The Regulatory Framework" in G. Thompson, M.L. McConnell & L.B. Huestis, eds., *Environmental Law and Business in Canada* (Ontario, Canada Law Book, 1992) c III at 55.

as well as environmental sense. It will render unnecessary much expensive clean up and restoration where this is possible. To a large extent it will do away with the need for ad hoc measures of a remedial and punitive nature which now encumber the statute books, with the need for the regulators to enforce them.

The preventive approach should also receive the support of any responsible oil operator in that it will help to shape an environment in which exploration and exploitation activities can remain profitable for several years without interruption through sabotage or other agitations which result from environmental degradation. Such oil companies could also avoid paying substantial damages, huge compensation[176] or high clean up costs.

G. AN ASSESSMENT

Environmental degradation resulting from petroleum operations has greatly affected the people of the oil producing areas[177] in Nigeria. An examination of existing petroleum and environmental regulation shows that the oil companies are in some cases encouraged to comply with the regulation without any sanctions in the event of the noncompliance. The

---

[176] "Recent Development" (1995) 25:3 Environmental L. Reporter at 10162. A U.S. District court ordered Exxon Corporation (US) to pay $5 billion as compensation and punitive damages over the March 1989 Exxon Valdez oil spill in Alaska's Prince William Sound in which more than 41 million litres of crude oil was spilled, killing wildlife and fouling 2,400 kilometres of twisting shoreline. Operators in Nigeria however negotiate with the government on the amount of compensation they will pay to any person whether use of their surface rights or for damage to their properties.

[177] Bola Ogunsanwo, supra, note 44 at 52. The writer stated that the Ogoni people of the Niger Delta are facing a threat of extinction due to the broad-spectrum negative impacts of the oil industry on their communities. This opinion is however subject to verification by a more detailed research specifically for that purpose.

use of the hortatory style in the regulation of an industry prone to environmental degradation is not advisable, as the operators tend to prefer to make more profits rather than to "waste" money on maintaining a clean environment under a non enforceable environmental law or regulation.

The effects of encouraging oil operators to undermine their responsibilities to humans and the environment are enormous. Discretionary powers are vested in the various regulatory officials and agencies without stating any standards for the exercise of such discretion. The use of the discretionary approach was based on the assumption that all problems were technical and that the agencies would establish their legitimacy by solving them correctly. However, in Nigeria, the agencies are underfunded and have insufficient inexperienced personnel to accomplish their tasks. As a result, standards are not established by the agencies so that this approach is rendered ineffective. Above all, the major disadvantage of the use of discretionary approach is the constraint posed by political, legal and economic forces which ensure that the agencies are not really free to decide in favour of environmental considerations.[178]

The command and control legislative style is likely to be unsuccessful because sanctions alone, are not an effective threat when the regulated community (in this case the oil operators) does not share the values sought to be furthered by the relevant laws and

---

[178]Elaine L. Hughes, "Civil Rights to Environmental Quality" in Elaine L. Hughes, A. R. Lucas & William A. Tilleman, eds., *Environmental Law and Policy* (Canada: Emond Montgomery Publications, 1993) 410.

regulations,[179] especially when they are aware that most sanctions for the noncompliance are inadequate. Again, the government may not have the resources to monitor for breaches and to litigate non-compliance. It also shares the defect with other methods of regulation that it is particularly prone to political interference.

No single legislative style is effective in regulating an industry of this nature which has grave legal, economic and political implications on the life of a nation. Merely leaving the oil operators to act as they think best is not in the interest of the entire citizenry nor the environment. A hybrid approach, where several of these approaches are used, is advocated, taking into consideration the need for the establishment of enforceable standards and the adequate funding and equipping of regulatory agencies.

Preventive measures should be incorporated into the legislative regime. This can take the form of mandatory environmental impact assessment process by all oil operators before commencing any energy project.

The next chapter will examine aspects of the experience of the industry in Alberta, to determine whether, and to what extent, it provides a useful guide to the Nigerian legislators and regulators in the control or prevention of incidents of oil spills and gas flaring.

---

[179]James A. Henderson & Richard N. Pearson, "Implementing Federal Environmental Policies: The Limit of Aspirational Commands" (1978) 78:7 Colum. L. Rev. 1429 at 1434.

ENVIRONMENTAL REGULATION OF THE OIL AND GAS INDUSTRY IN ALBERTA

A. INTRODUCTION

Oil and gas operations involve many activities from drilling to production stages. The taking of active remedial and preventive measures can assist in the avoidance of the danger of environmental degradation at every stage of oil operations. This chapter will seek to assess how the various regulatory agencies regulate the oil and gas industry in Alberta to ensure environmental protection and maintain economic development. The entire topic of environmental regulation of the oil and gas industry involves several aspects that cannot be adequately researched and completed in a single volume. I will therefore restrict this study to the regulation of gas flaring and oil spills in Alberta.

The first section will be an introduction to the geographical features of the province of Alberta for the benefit of Nigerian and other interested readers. In section two, I will give a brief summary of the size of the industry to show its role in the economic and environmental life of Albertans. I will explain the purposes, powers and limitations of the regulatory agencies in the third section. I will examine the legal framework in the fourth section to show how the province regulates gas flaring and the

incidence of oil spills and the limitations of those provisions. In section five, I will examine the enforcement philosophy applied by the agencies and proffer an alternative approach to the enforcement policy. The chapter concludes in section six with an overall assessment of the Alberta approach.

B. ALBERTA

The province of Alberta is in western Canada. It is bordered on the west by British Columbia and on the east by Saskatchewan, and on the north by the Northwest Territories. The state of Montana in the United States of America is directly south of the province. Alberta is the fourth largest province in Canada. The land area is 638,232.66 square kilometres and it has a population of 2,545,553 people[1]. Two major cities of Edmonton and Calgary account for four fifths of the province's population.[2] Common features of the diverse landscape in the province are prairies, foothills, mountains, wetlands and large northern lakes. A variety of rich farmlands, ranch lands, timber areas, and mineral deposits also exists in the province. Boreal forests are found in the north and coniferous forests in the west. Activities like camping, hunting and fishing are therefore commonplace.

---

[1]A National Overview (Ottawa: Statistics Canada, 1997) 55.

[2]Ibid at 13. The population of Calgary by 1996 census figures is 821,628 while 862,597 people live in Edmonton.

1. Oil and Gas Industry

Alberta is a landlocked province and all oil operations are therefore terrestrial.[3] The oil and gas industry is "a primary driver of its economy."[4] The growth of the province has parallelled the growth in the industry since oil was first discovered in commercial quantities in Leduc in 1947. This has resulted in increased employment opportunities and economic prosperity for Albertans.[5]

According to the 1995/1996 annual report of the Alberta Department of Energy, the industry produced 4.605 trillion cubic feet of gas in Alberta in 1995. It also produced one hundred and sixty million barrels of non-conventional oil and 349 million barrels of conventional oil[6] that cumulatively gave the province a total revenue of $3.1 billion.[7] Alberta has an estimated reserve of 374 million cubic metres of conventional oil and 1489 billion cubic metres of natural gas.[8] The province possesses more than 60% of Canada's

---

[3][Hereinafter called the Industry]

[4]1995- 1996 Annual Report of the Alberta Ministry of Energy (Edmonton: Alberta Department of Energy, 1996) 11. [hereinafter called Annual Report]

[5]Ibid.

[6]Ibid at 12.

[7]Ibid at 20.

[8]Ibid at 72.

conventional oil reserves and 83% of natural gas reserves[9] and produces about 80% of the oil and gas in the country.[10]

Oil operators have drilled more than 35,000 completed gas wells, completed more than 149,000 kilometres of gas pipeline and 8,000 kilometres of pipeline for natural gas liquids. The number of gas processing plants has increased tremendously from 175 in 1977 to 703[11]in 1997. According to a 1996 paper presented by Frank J. Mink, member of the Alberta Energy and Utilities Board (EUB), the current inventories of facilities in the industry include:[12]

250,000 km of pipelines
4,000+ compressor stations
7 power plants
27 petrochemical plants
180,000+ oil and gas wells
12,000+ single and multi well oil batteries

In the early years, oil and gas operations were concentrated in heavily populated regions of the province that are also suitable for agricultural development and attractive for recreational activities. But in recent times, operations have been carried out in remote areas. Industrial growth has brought with it the increased potential for environmental problems, such as gas flaring and oil spills, which are the main focus of this study.

---

[9]Ibid at 70.

[10]Frank J. Mink, "Environmental Noise Control - Whose Responsibility is it?" (Paper presented to the 1996 Conference on Environmental Noise Control Engineering, at Banff, Alberta, 14-16 April, 1996) 2.

[11]*Environmental Regulation of Natural Gas Development in Alberta, Canada,* A publication of Alberta Energy.

[12]Frank J. Mink, supra, note 10.

2. Regulatory Agencies

Several environmental statutes of general application are used to regulate the industry in Alberta and some contain specific statutory provisions affecting the industry.[13] Most of the existing laws originate from the early 1970's.[14] Alberta Environmental Protection[15](AEP) and the EUB[16] are the main agencies charged with the environmental regulation of the industry. AEP plays an administrative and sometimes supportive role in the regulation of oil spills and gas flaring.

a. Alberta Environmental Protection

AEP is a provincial government department. The province originally established its predecessor under the Department of Environment Act in 1971. The Minister, who is its administrative head, was generally obligated to promote the environmental protection of the people of Alberta and future generations.[17] AEP is therefore principally responsible for ensuring the general environmental well being of all Albertans and uses the powers

---

[13]A.J. Hudec & J.R. Paulus, "Current Environmental Regulation of the Oil and Gas Industry and Emerging Issues" (1990) 28:1 Alberta L. Rev. 171.

[14]Ibid, at 173.

[15]Created by the Department of Environment Act, R.S.A. 1980, c. D-19.

[16]Created by the Alberta Energy and Utilities Board Act, S.A. 1994, c. A-19.5.[herein after called the EUB Act].

[17]Department of Environment Act, supra note 15, at s. 7(h).

conferred by the Environmental Protection and Enhancement Act (the EPE Act)[18] and other associated Acts[19] to regulate gas flaring and oil spills incidents in the province.

All applications made by oil operators to the EUB for licences or approvals for oil related activities, including well licences and approvals for production facilities, natural gas processing and other schemes must be referred to the Minister of AEP for review. The Minister may formulate environmental protection requirements that the EUB must adopt as conditions of its approval, unless the cabinet directs otherwise.[20] In other words all AEP recommendations are incorporated as terms and conditions of any ultimate licence and approval granted by the EUB. The Minister may order that no approval be issued in respect of an activity if he thinks that it is not in the public interest to do so.[21]

AEP is also responsible for the administration of the environmental impact assessment process (EIAP) introduced in 1993 as part of the EPE Act. The EPE Act requires an operator to submit an EIAP report if a project is a mandatory activity.[22] Oil and gas activities that are classified as mandatory include heavy oil extraction, upgrading or processing plants producing more than two thousand cubic metres of crude oil, and an oil refineries. Anyone participating in any of these activities must go through an EIAP

---

[18]Environmental Protection and Enhancement Act, S.A. 1992, c. E-13.3, as am. 1994, c. 15.[hereinafter called EPE Act]

[19]Fire Prevention Act, S.A. 1982, c. F-10.1 & Transportation of dangerous Goods Control Act, S.A. 1982, c. T-6.5, as am. 1994, c. M-26.1, s. 642(70).

[20]Oil and Gas Conservation Act, R.S.A. 1980, c O-5, as am. 1994, c. 26, s 26(2)(4).

[21]EPE Act, supra note 18 at s. 62.

[22]Environmental Assessment (Mandatory and Exempted Activities) Regulation (Alta. Reg. 111/93)

before applying for approval (to the EUB) to carry out the activity. For non-mandatory activities, the Minister may invoke powers granted under section 45 of the EPE Act to require the preparation of an EIAP report on any project in Alberta.

The EIAP is applied to the oil and gas industry through a mutual relationship between the AEP and the EUB established by the EPE Act. The Director of AEP is obliged to advise the EUB on the completeness of an EIAP. report where the proposed activity is one in respect of which the approval of the EUB is required. In non-mandatory activities, the Director exercises his discretion in deciding whether an EIAP report will be required. Once the Director so decides, this triggers the EUB process regarding any application for approval of a licence to carry out the proposed activity.

b. EUB

The EUB was created on 15 February, 1995, as a result of the merger of the Energy Resources Conservation Board (ERCB) and the Public Utilities Board (PUB). The history of the ERCB[23] dates from 1932 when the government established its predecessor, the Turner Valley Gas Conservation Board.[24] The Petroleum and Natural Gas Conservation Board was constituted in 1938[25] and reconstituted as the Oil and Gas

---

[23]See Steven A. Kennett, ed., *Canada Energy Law Service* (Scarborough, Ontario: Carswell, 1996) 30-3101, for a brief history of ERCB.

[24]See Turner Valley Gas Conservation Act, S.A. 1932, c. 6.

[25]Oil and Gas Conservation Act, S.A. 1938, c. 15.

Conservation Board in 1957.[26] It was originally mandated to manage the energy resources of Alberta.[27] The EUB has exclusive jurisdiction over all matters that were under the jurisdiction of the ERCB and PUB.[28] Under an earlier transitional provision, the ERCB and PUB were "to continue to exist as corporate entities and the legislation which they administer remaining intact."[29] The EUB now functions as a single board since the former ERCB and PUB have merged and their former employees have been integrated under a single employee policy and salary administration of the EUB.[30]

i. Membership

Since its amalgamation, the EUB consists of nine members including the chair, who are appointed by the Alberta government. The current term of members, pending good behaviour, is five years at the first instance with a possibility of renewal by the Cabinet.[31] The Cabinet fixes the remuneration of the members but the EUB pays such remuneration.[32]

---

[26]See Oil and Gas Conservation Act, S.A. 1957, c. 63.

[27]Energy Resources Conservation Act, S.A. 1971, c. 63, now R.S.A. 1980, c. E-11.[herein after called ERC Act].

[28]EUB Act, supra note 16, at s. 8(1).

[29]Ibid, at s. 8(2).

[30]Annual Report, supra note 4 at 62.

[31]Ibid, at s. 4(3).

[32]Ibid, at s. 4(5).

ii. Organizational Structure and Funding

The EUB's head office is at Calgary[33] and it has eight field centres in Alberta (staffed by 80 members).[34] The EUB has more than 600 members of staff grouped into four divisions:[35] Utilities, Facilities, Resources and Corporate services.[36]

The funding of the EUB is statutorily regulated.[37] The EUB requires approximately $54 million every year for its operations. Two-thirds of the funds required by the EUB are obtained from the levies imposed on producing oil and gas wells while the remaining one-third is a grant from the provincial government. The EUB also collects application and licensing fees and sells oil and gas data and information to boost its revenue base.[38]

iii. Role and Purpose

The EUB has exclusive jurisdiction to regulate all energy resource development in Alberta. The EUB is designated to perform environmental assessment of proposed energy projects when it determines that a particular energy project requires an EIAP report.[39] The

---

[33]The EUB's address is at 640, 5th Avenue S.W., Calgary, Alberta, Canada, T2P 3G4.

[34]Annual report, supra note 4 at 74.

[35]The Alberta Energy and Utilities Board, The EUB and Energy Regulation, EUB Guide 57-1a, November, 1996 at 3.

[36]Ibid.

[37]The Alberta Energy and Utilities Board Statutes Amendment Act, S.A. 1996, c. 5. See also EUB Guide 57-1a at 4.

[38]Ibid.

[39]Administrative Procedures for Environmental Impact Assessments in Energy Projects, ERCB General Bulletin GB 93-14, 13 December, 1993.

EUB reviews all EIAP documents submitted by the applicant or proponent of the energy project and all statements of concern expressed by the public. On the advice of the AEP that the EIAP report is complete, the EUB will go on to dispose of the application.[40]

It is mandated "to provide for the economic, orderly and efficient development in the public interest of the oil and gas resources of Alberta."[41]The phrase "public interest" is not defined in any legislation which the EUB has the powers to carry out. M.J. Bruni, the manager of the EUB's legal department, summarizes what this interest entails:[42]

> The Board interprets the environment, including health impacts, as part of the public interest. Although the environment, has played its role in defining the public interest, this role has been of greater significance over the last several years. The evaluation of the environment as a public interest issue, at least before the ERCB, has been influenced by public involvement and concern with the environment.

This public interest role gives wide powers to the EUB including its ability to refer to other existing statutes in the province. Environmental matters relating to the industry are within the ambit of the EUB's jurisdiction.[43]

---

[40]ERCB and AEP Administrative Procedures for Preparing an Environmental Impact Assessment, November 1993.

[41]Oil and Gas Conservation Act, supra note 20, s. 4.

[42]M.J. Bruni, "Environmental Issues Confronting the Alberta Energy Resources Conservation Board", in *Environmental Direction: Environmental Review, Licensing, Enforcement and Liability in the Oil and Gas Industry* (Mississauga: Insight Press, 1990) at 4.

[43]See F.M. Saville & R.A. Neufeld, "The Energy Resources Conservation Board of Alberta and Environmental protection" (1989) 2 C.J.A.L.P. 287 at 294-304 for a detailed discussion on the public interest role of the Board.

The EUB has two prominent roles in relation to control and prevention of oil spills in Alberta. The EUB's duties under section 2(d) and (e) of the ERC Act are stated to include:

> (d) to control pollution and ensure environmental conservation in the exploration for, processing, development and transportation of energy resources and energy;
> (e) to secure the observance of safe and efficient practices in the exploration for, processing, development and transportation of energy resources of Alberta.

This duty to "control pollution" gives the impression that the EUB is entitled to take measures in reducing the incidence of pollution in the industry without necessarily preventing or eradicating such incidents completely. The reasoning of the EUB, as stated in one of its decisions is that:[44]

> The Board believes that if the legislature had intended the Board to prevent pollution, then it would have used such express words.
> In summary, the Board concludes that the legislation directs the Board to control or limit pollution. The degree of limitation would be influenced by various considerations including economics. It follows that the "best available technology" is not necessarily the standard, and indeed, the term "best practical technology" is one compatible with the legislation.
> The Board recognizes that . . . it must operate within the existing legislative scheme at the time of the hearing of an application. In addition, the Board will, where policies and guidelines for pollution control standard[s] exist, have regard for those policies and guidelines, but in doing so, the Board will consider the appropriateness of such policies and guidelines in each case before it. In other words, the Board, in assessing each application on its own merits, and after considering all evidence in that regard, will decide whether there is some specific reason (i.e., economics, environmental impact, public interest) directly related to the situation which would warrant the application of more stringent or less stringent standards in that case.

---

[44] *Esso Resources Canada Ltd, Quirk Creek Gas Processing Plants*. ERCB Decision 82-12, 7 May, 1982, at 5-6.

This perception of the EUB raises some fundamental issues that may be outside the express provisions of existing legislation. The conclusion by the EUB that its mission is to control pollution alone, is statutorily correct and practical but it tends to limit the zeal of an operator who aspires to minimize pollution.

Another issue is that existing legislation does not specify the type of technology-based approach[45] nor the standard that will be applied by the EUB when considering an application on a proposed pollution abatement facility. However, the EUB can adopt any type of technology-based approach in furtherance of its obligation to take steps or make regulations prescribing the measures to be taken to control pollution associated with oil operations.[46] Apart from the above statement, the EUB has made no regulation specifically adopting a particular approach. It is my contention that preferring one type of technology-based approach over another is a matter that needs serious examination to decide its suitability under the circumstances.

iii.i. Technology-Based Considerations

The Best practicable technology (BPT) applies economic reasonableness as its test in determining the type of pollution control facilities to be installed by oil operators. The test is based on "whether costs are "wholly disproportionate" to the benefits."[47] This

---

[45]See EPE Act, supra note 19, at ss. 12(h) & 13, for a contrasting view where the Minister of AEP may develop and implement market-based approaches to achieve environmental protection.

[46]Oil and Gas Conservation Act, supra note 20, at s. 10(2)(c).

[47]Scott D. Deatherage, "Environmental Law" (1990) Texas Tech L. R. 261 at 274.

approach allows flexibility to the regulators in the choice of technology and helps in balancing the interest of the government, the regulated industry and the environment. It ensures that operators use pollution control facilities that take into consideration several factors including the efficiency of the facilities, ability of the operators to provide such facilities and the fact that the facilities comply with modern standards (though not necessarily the best available) in the industry.

In Alberta, the EUB does not leave the operators to decide the type of pollution abatement facility the operators think is the 'best practicable' under the circumstances. An application for a proposed pollution abatement facility is submitted to the EUB and the proponent will convince the EUB that the proposed facility will adequately control pollution that may result from its operation. The EUB then approves or refuses the application if the facility does not meets its standards. Approval is granted on a case by case basis.

Application of the BPT approach has been criticised for the flexibility in the choice of technology it allows a regulator which may not encourage operators to adopt the best available pollution control facility since the regulator may be satisfied with a less efficient facility. Despite the fifty years experience of the EUB in regulation of the industry, there is the tendency for operators to find it easier to convince the officials of EUB on a proposed facility because of the exit of experienced personnel caused by recent government cut backs in funding to the EUB and more favourable conditions of service in the industry itself. Bargaining and negotiation, which are the hallmark of the BPT, also give room for the operators to meet minimum standards. Absence of specific standards

applied by the EUB when deciding an application for a proposed facility may lead to arbitrariness in the facilities used in the industry as some facilities may be approved or rejected depending on the decision maker.

Some critics have also argued that the performance standards under this approach are insensitive to differences in the costs and opportunities facing different operators. Every operator is still required to accomplish the same emissions reduction even if allowing some firms to control more could achieve the same total reduction at less cost while others control less.[48]

The Best Available technologies (BAT) approach, on the other hand, calls for heavy reliance on advanced technology and process controls which are appropriate for dealing with pollution problems. Professor Houch[49] states that several factors, such as available engineering technology, costs, process employed and process changes are taken into consideration in determining which BAT standards are to be met by each pollution control facility.

BAT lays emphasis on the use of best available facilities in oil operations which may transcend a particular geographical region. Specific standards regarding the type of technology to be installed by all operators are established and communicated to the operators under the BAT approach. Shapiro and McGarity have submitted that the use of

---

[48]Daniel J. Dudek, Richard B. Stewart & Jonathan B. Wienner, "Environmental Policy for Eastern Europe: Technology-Based Versus Market-Based Approaches" (1992) 17:1 Colum. J. Environmental L. 1 at 3.

[49]Oliver A. Houch, "Of BATs, Birds and B-A-T; The Convergent Evolution of Environmental Law, in Stuart L. Deutsch & A. Dan Tarlock, eds., *Land Use and Environment Review* (New York: Clark, Boardman, Callaghan, 1995) 361 at 403.

BAT strategies is therefore less expensive to enforce because inspectors are only required to decide whether a firm has installed the required technology and continues to operate it properly.[50]

Critics of the use of this approach argue, that since BAT obligates operators to instal the same technology in pollution control, oblivious of any difference among them, it offers no incentive to companies to continue to use their initiatives to reduce emissions beyond the prescribed levels.[51] They further posit that operators of new facilities are made to use more expensive technology while old and outdated facilities are left untouched and sometimes, operators are given insufficient lead time to install pollution abatement technology as the inability of a particular operator to instal the expected technology is not taken into consideration.

BAT has also been criticised for its insensitivity to the costs and benefits of installing a particular control technology at each site or by each operator. These views have some merit considering the fact that at a given location, the effects of pollution may be so small that the installation of a $10 million BAT facility will be unjustifiable. However, these arguments which are based on a cost/benefit analysis, emphasize the benefits to operators and the government without adequate regards to the effects of pollution on human health and the environment.

---

[50]Sidney A. Shapiro & Thomas O. McGarity, "Not So Paradoxical: The Rationale for Technology-Based Regulation" (1991) 1991:3 Duke L.J. 729 at 749.

[51]Ibid at 411.See also Cass R. Sunstein, "Administrative Substance" (1991) 1991:1 Duke L.J. 607 at 628-30 where the author argues that a company that innovates under BAT will simply have to invest more in pollution control, which makes such company to be punished instead of being rewarded.

From this analysis of the benefits and defects of the two types of technology-based approaches, it appears that no one approach may be preferred to the other. The designation of a particular technology as satisfying the required standards can actually stifle innovation by forcing industry to accept a particular technical solution to pollution control.

However, the BPT approach adopted by the EUB is more in touch with realities as it attempts to take into consideration the interest of all parties concerned with the industry and the environment. This approach will be more effective if the EUB can list pollution control equipment which complies with modern standards and make such a list available to all applicants. The list will act as a guide in the choice of pollution abatement facilities in the industry. The EUB should update the list from time to time to ensure that the pollution control equipment used is comparable to the best in the industry.

The EUB may adopt the United States approach[52] in deciding which equipment meets its set standards. The EUB can therefore establish a special division to advise it on the equipments that satisfies the BPT requirements.

Many legal scholars have criticised technology-based approaches to pollution control[53] for a variety of reasons. First, technological standards discourage innovation in

---

[52]See Technology Assessment Act, 86 Stat. 797 (1972). The office of technology is a research arm of the U.S. Congress which was created to provide Congress with independent and timely information about the social, environmental and economic effects of recent technological developments.

[53]"Technology-Based Emission and Effluent Standards and the Achievement of Ambient Environmental Objectives" (1982) 91:4 Yale L.J. 792 at 794-98. The writer argues that technology-based standards are inefficient in achieving ambient standards because they fail to take into account geographical differences in air or water quality or cost differences among individual firms and fail to promote any important non-economic goals. See also Scott D. Deatherage, supra note 47, and Daniel Dudek, R. B. Stewart and J.B. Wienner, supra note 48..

control technology. Operators cannot invest in the development of new and better technologies as there will be no market for such new technologies. Secondly, they discourage improvement in the efficient use of resources for once the required technology is put in place and the operators have complied with the law, no further incentive to act in the interest of the environment is provided even in the face of availability of a better method. Thirdly, the approach tends to result in far more stringent controls on new operators or new facilities. Operators or new investors are not encouraged to build new plants or engage in exploration or production ventures.

It is submitted that any serious businessperson or oil investor cannot be discouraged by the requirement of meeting a particular technological standard if such standards are necessary to carry out environmentally safe operations as the operator may benefit eventually. Technology-based approaches may be more feasible to set up and administer by the regulators.[54] Concluding that this approach discourages improvement is inaccurate because the regulatory agencies will update the requirements periodically so that operators are encouraged to instal more efficient equipment.

Above all, technology-based standards give at least a practical weapon to the regulators in controlling pollution in the light of pervasive uncertainties about the effects of oil spills on the environment.

Some law and economics scholars have called for the introduction of a market-based rather than the technology-based approach to pollution control. The market-based

---

[54]Howard Latin, "Regulatory Failure, Administration Incentives, and the New Clean Air Act" (1991) 21 Envtl. L. 1647.

approach emphasises the creation of economic incentives for the industry to apply new technology, process designs and efficiency in pollution control.[55] It motivates operators to move beyond the status quo by finding new ways of improving the environment. However, this approach, like every other legal assertion, has also been criticised for its inadequacies.

Merely designing a market-based approach does not guarantee that it will be effectively carried out, for even the most finely crafted environmental protection system may fail without a credible and legally demonstrable threat of enforcement against polluters.[56] Adopting a market-based approach in a place like Alberta where regulatory laws are already applicable, will frequently alarm current stakeholders including the regulated industry, especially when there are very few good working examples of the approach.

The market-based approach will be unsuitable for Nigeria even in the future as the adoption of the approach will be similar to legalizing pollution. Operators will take advantage of the approach to argue that they are operating according to pollution permits or licences. As Mendeloff cautions "those who die because society rejects efficient lifesaving programs will not be around to benefit from the bigger pie."[57]

---

[55]For a detailed study of this approach, see Daniel Dudek, R.B. Stewart & J.B. Wienner, supra note 48.

[56]Ibid at 48.

[57]J. Mendeloff, "The Dilemma of Toxic Substances Regulation: How Over regulation Causes Under regulation at OSHA" cited in Sidney A. Shapiro & Thomas O. McGarity, "Not So Paradoxical: The Rationale for Technology-Based Regulation" [1991] 1991:3 Duke L.J. 729 at 740.

Though the United States has successfully adopted the market-based approach in pollution control,[58] existing literature[59] shows that various instruments used under this approach are difficult to design and for the Nigerian purposes, a higher degree of sophistication is required which may not be available presently.

iii.ii. Economic and Public-Interest Considerations

The EUB is obliged to consider the social, economic and environmental effects of any energy resource project while conducting any hearing, inquiry or investigation before granting any approval to an application. The EUB is also mandated to consider whether the project is in the public interest.[60] The Act provides that,

> Where by any other enactment the Board is charged with the conduct of a hearing, inquiry or other investigation in respect of a proposed energy resource project, it shall, besides any other matters it may or must consider in conducting the hearing, inquiry or investigation, give consideration to whether the project is in the public interest, having regard to the social and economic effects of the project and the effects of the project on the environment.

Giving equal considerations to these factors is mandatory for the EUB and it should not exalt any of them above the others. The importance of oil as a revenue generator is acknowledged but the regulatory agencies should not allow this consideration to hinder the fulfilment of their duty to ensure environmental protection. Concerns expressed in

---

[58]Bernard S. Black & Richard J. Pierce, "The Choice Between Markets and Central Planning in Regulating the U.S. Electricity Industry" (1993) Colum. L. Rev. 1339 at 1396.

[59]Daniel J. Dudek, Richard B. Stewart & Jonathan B. Wienner, supra note 48.

[60]ERC Act, supra note 27, s. 2.1.

some quarters[61] that, because the EUB is a tribunal charged with the conservation of energy and the economic, efficient and orderly development of Alberta's energy resources it should not allow environmental considerations. This is to prevent it from allowing oil operations to continue and is inconsistent with the obligations on the EUB to consider environmental impact of any proposed energy project before granting approval or licence.[62]

It is now settled that economic progress and prosperity should not ultimately be at odds with environmental protection. The declaration of the EUB set out earlier[63] seems to portray it as an advocate of the regulated firms and the government which appointed its members. It is at variance with the public interest role to which the EUB is obliged to protect.

According to Stewart, considering economic factors because the industry is the main source of government's revenue, is antithetical to environmental protection as it will lead to a situation where "an agency will be reluctant to push too hard with regulatory directives that may cause service failures."[64] He further stated that the regulatory agencies may be reluctant "to enforce measures that may seriously impair the financial

---

[61]See B. O'Ferrall, "The ERCB and the NRCB: Are They Equivalent?" (1992) 7:2 Environmental Law Centre News Brief, 1 at 2.

[62]See *Strathfield Oil & Gas Ltd, Application for - A Permit to Construct a Pipeline - Approval to Construct a Satellite Production Facility - A Well Licence Provost Field.* ERCB Decision D 91-9, 13 June 1991, at 2, where the Board expressed the view that its powers under the Oil and Gas Conservation Act and the Energy Resources Conservation Act includes "potential impacts on ... the environment.

[63]Esso Resources Canada Ltd, supra note 44.

[64]Richard B. Stewart, "The Discontents of Legalism: Interest Group Relations in Administrative Regulations" (1985) Wisconsin L. Rev. 655 at 663.

health of the regulated industry."[65] With respect to the learned author, economic and environmental factors are compatible, the interest of the industry is also worth considering and protecting and the regulators must always bear both in mind when taking any measures to control pollution.

Another consideration is the public-interest factor. The EUB is obligated to consider whether a project is in the public interest when it is conducting a hearing, inquiry or other investigation in respect of the proposed activity.[66] This obligation is necessary because the previous attitude of government and the regulators appear to have down-played the importance of the public interest. According to Elgie,[67]

> Behind almost all environmental lawsuits lies a record of environmental mismanagement by government or industry. In particular, there is usually a failure to consider genuinely public concerns over a project and a failure to integrate those concerns into project planning.

Mandating the EUB to consider the public interest is not enough, the public interest will be better canvassed by members of the public who are affected by the decisions of the EUB and the pollution caused by the operators. Under existing legislation,[68] restricted public participation is allowed. In the hearings conducted by the EUB, a member of the

---

[65]Ibid.

[66]ERC Act, supra note 27, s. 2.1.

[67]S. Elgie, "Making Bureaucracies Accountable: Judicial Review Of Environmental Decisions" in S.A. Kennett, ed., Law and Process in Environmental Management (Calgary: Canadian Institute Of Resource Law, 1993) 196 at 198.[hereinafter *Law and Process in Environmental Management]*

[68]See EPE Act, supra 18, s. 186 that allows two adults resident in Alberta to apply to the Minister of AEP to order an investigation of an operator's activity which they allege to have adverse effects on the environment.

public will be granted standing if such a person can establish that the proposed activity will directly affect him. In Section 29(2) of the ERC Act, the EUB is charged to give any person certain procedural opportunities during the hearing of an application for a licence or approval regarding oil and gas activity, if it appears to the EUB that the rights of such people will be directly and adversely affected by its decision.

Apart from hearings, public participation in the EUB's decision making is presently limited. Any input by the public is very crucial to the effective protection of the environment. Such participation serves to protect the interest of not only the people affected by oil operations but also for general human health and the environment. Public participation in the regulatory process and in decision making is valuable to the regulators in several ways. They include, (a) provision of a variety of ideas and information on which the regulators can base their decisions, (b) making instructive information and legal information available to the regulators, © enhancing public acceptance of judicial and administrative decisions affecting the environment, and (d) stimulating the decision makers to be more thorough and to articulate more clearly and precisely the reasons for their decisions.[69] Allowing less public participation in the environmental assessment process will increases the validity of the process and the participation should not be restricted to the hearing alone but extended to the decision-making process.

The extension to the public of the right to contribute on matters that may adversely affect them would be a welcome development in Nigeria. Presently all

---

[69]Raj Anand & Ian G. Scott, "Financing Public Participation in Environmental Decision making" (1982) 60 Can. Bar Rev. 81.

decisions affecting the industry in Nigeria are taken by the Department of Petroleum Resources on the approval of the Military head of state. Public hearings or inquiries are not conducted before an approval or a licence is issued by the Minister of Petroleum and Mineral Resources in Nigeria.

iv. Regulatory Powers

Discretionary powers are conferred on the EUB by the various statutes under which it operates. The EUB is empowered to "do all things that are necessary for or incidental to the performance"[70] of all duties and functions imposed on it by the Act and by any other Act in the province. The EUB is authorized, with Cabinet approval, to take any action and make any orders and directions which are not specifically authorized that it considers necessary to effect the purposes of the Acts.[71]

The EUB has the power[72] to make regulations under the Oil and Gas Conservation Act on environmental matters, though "measures to be taken to control pollution above, at or below the surface in the drilling of wells and in operations for the production of oil and gas and in other operations over which the EUB has jurisdiction" require the approval of the Minister of Environmental Protection.[73]

---

[70]ERC Act, supra note 27, at s. 15.

[71]Ibid, s. 21; see also Oil and Gas Conservation Act, supra note 20, s. 7.

[72]Oil and Gas conservation Act, ibid at s. 10.

[73]Ibid, at s. 10(2).

The EUB has broad powers under section 15 of the ERC Act to do all things that are necessary for or incidental to the performance of the duties and functions imposed on it by the Act and by any other Act. Section 21 of the Act also provides that the EUB can, with the approval of Cabinet, take any action and make any orders and directions that it considers necessary to effect the purposes of the Act and which are not specifically authorized by the Act. The EUB may also delegate to designated officials any powers or duties conferred or imposed on it by any other Act unless such delegation is expressly prohibited.[74]

While enormous discretionary powers are obviously vested in the EUB, the next issue to be considered is the extent to which that discretion is limited and the efficiency of the limitations. The EUB is obliged to give an annual account of its activities to the Legislature[75] but issues like the exercise of discretion are not usually discussed in its reports. No one can sue the EUB for failing to exercise its discretion or for wrongful exercise of discretion. This is comparable to the clauses in most Nigerian legislation that oust the jurisdiction of the courts on decisions taken by government and government agencies on oil and gas related matters.

EUB's decisions can be appealed to the Alberta Court of Appeal on grounds of lack of jurisdiction or an error of law.[76] Any other order, ruling or decision of the EUB or the person exercising the powers or performing the duties of the EUB is final and is not

---

[74]ERC Act, supra note 27 at s. 13.

[75]Annual Report, supra note 4.

[76]EUB Act, supra note 16, s. 21.

subject to judicial review.[77] Section 20 of the EUB Act sets out a privative clause which gives the EUB an unregulated use of a discretion-laden environmental regulation of the industry.

C. FRAMEWORK FOR THE REGULATION OF GAS FLARING

Gas flaring which is the disposal of gas in the field by burning occurs in Alberta particularly in areas such as Red Deer, Taber and Hardisty.[78] Absence of a market or lack of a non wasteful use of the gas is often the reason for gas flaring. More than five thousand, three hundred active flares are presently in operation in Alberta.[79] Noise, visibility problems, odour, smoke, and air quality related health concerns associated with flaring are some of the major concerns to people living in such areas.[80] The industry in Alberta has achieved a conservation rate of ninety-two per cent of the total solution gas produced while the remaining 8% is flared.

The EUB considers flaring to be necessary as the operators may not conserve all solution gas. The reasons given by the EUB for this position include:[81]

---

[77]Ibid, at s. 21.

[78]EUB Policy Review of Solution Gas Flaring and Conservation in Alberta, EUB 97-A, June 1997, at I.

[79]M. Strosher, *Investigations of Flare Gas Emissions in Alberta* (Calgary: Alberta Research Council, November, 1996) 3.

[80]Ibid.

[81]ERCB Gas Flaring in Alberta, ENERFACTS 8, 3-4.

> [a]. Well testing - well testing gives an operator time to assess a well's capability. It also helps determine the appropriate gathering and processing systems required to best handle the well's production.
> [b]. Operational Upsets - flaring also occurs for operational reasons such as equipment failures, power outages, pipeline problems, or the scheduled maintenance of equipment. The ERCB considers these to be circumstances that may lead to short periods of unavoidable flaring.
> [c]. Not practical economically - many oil wells are located [far] from processing facilities or produce very small volumes of solution gas. In such situations, it is uneconomical or technically impractical to construct a pipeline and gas compression facilities in the area to gather solution gas for processing.

At the present level of operational and scientific knowledge, the above reasons appear justifiable especially when this approach has led to the reduction of flaring to maximum of eight per cent. Environmental protection in Nigeria would be greatly enhanced with the attainment of a similar conservation rate, though with the present regulatory practices, such an aspiration seems to be utopian.

Nevertheless, the public has expressed concern on the impact of gas flaring on human health and the environment because of the alleged cases of "excess mortality, high rates of cancer, diminished respiratory function, dangerous levels of trace metals in the body, higher rates of unfavourable reproductive outcomes and birth defects, and delayed or abnormal childhood development"[82] caused by emissions from gas flaring. In the light of these possible problems, I will attempt to examine in this section the regulatory measures taken to control pollution caused by gas flaring in the industry.

Under the EPE Act, any activities where the release of substances may cause an adverse effect require the grant of an approval by the Minister or his delegated official.

---

[82]Ibid, at 7.

The Act defines the term "release" to mean among others "to emit"[83]while "substance" is defined to include "any matter that is capable of becoming dispersed in the environment, or is capable of becoming transformed in the environment."[84]Any person who wants to construct or operate a plant, structure or thing for the manufacture or processing of natural gas or its products requires an approval.[85] Section 9.030 of the Regulation specifically provides that an operator can only commence the construction of a gas plant scheme and processing of gas if the Minister of AEP has approved the pollution control measures for such operations. The Director of AEP may issue or refuse to issue approval or issue an approval on any terms and conditions he considers appropriate.[86] Regulations also oblige all operators to conduct their operations so as to control emissions of sulphur and odours arising from the processing of gas including gas flaring.[87]

The Minister of AEP or the delegated officials have statutory authority to regulate gas flaring in the oil and gas industry in Alberta directly through the approval of operations and the imposition of terms and conditions in relation to pollution control through such permits and approvals. As administrator of the EPE Act, the Director of AEP is obliged to ensure that no person releases or permits the release of a substance into

---

[83]EPE Act, supra note 18, at s. 1(ggg).

[84]Ibid, at s. 1(kkk).

[85]See ibid, at ss. 58 & 65; the Schedule of Activities attached to the Act and the Activities Designation Regulation, Alta Reg. 211/96. See also Oil and Gas Conservation Regulation, Alta. Reg. 151/71, at s. 9.030.

[86]EPE Act, ibid, at s. 65.

[87]Oil and Gas Conservation Reg., supra note 85 at s. 9.050 (6).

the environment in an amount, concentration or level or a rate of release that exceed a level expressly prescribed in the approval.[88] The Act prohibits the release of a substance into the environment that may cause a significant adverse effect unless approved.[89] It is also an offence to be in breach of a term of an approval.

The Director is empowered to issue an environmental protection order to the person responsible for the release of a prohibited substance into the environment if he thinks such release may cause an adverse effect. However, an EPO cannot be issued where the release of the substance into the environment was by any person expressly authorized by the EUB or who operates within an approval or registration by the EUB.[90] The Director may issue an EPO to an operator who causes the release of a substance, such as emissions from gas flaring, whether or not that operator was expressly authorized to cause such release, if the Director believes the approving body did not reasonably foresee at the time of the approval the adverse effect of the operation.[91]

An EPO is a direction by the Director to any person responsible for the release of a prohibited substance to take any or all of the following measures to control and prevent such pollution:[92]

(a) investigate the situation;
(b) take any action specified by the Director to prevent the release;

---

[88]EPE Act, supra note 18, at ss. 97 & 98.

[89]Ibid.

[90]Ibid, at s. 102(2).

[91]Ibid.

[92]Ibid, at s. 102(3).

(c) measure the rate of release or the ambient concentration, or both, of a substance;
(d) minimize or remedy the effects of the substance on the environment;
(e) restore the area affected by the release to a condition satisfactory to the Director; ...
(h) construct, improve, extend or enlarge the plant, structure or thing if that is necessary to control or eliminate on an immediate and temporary basis the release of the substance into the environment.

The Director, inspector or investigator in AEP also has the power to issue emergency EPO in respect of an offensive odour resulting from oil operations.[93] Operators in the industry are however exempted from the mandatory duty to report any release of a substance that can cause an adverse effect.[94] AEP requires all operators to measure the quantities of flared gas continually and to calculate the daily amount of sulphur dioxide that goes into the atmosphere so that such records can be used in the review of standards and emissions control in the province.

The AEP advises the EUB on whether an operator has completed an EIAP and it sends its report to the EUB including any term or condition which might be imposed on any subsequent licence or approval.[95] The Act states that,[96]

> Where in the opinion of the Director an environmental impact assessment report is complete the Director shall advise the Energy Resources Conservation Board [EUB] that the report is complete, in case where the proposed activity is one in respect of which the approval of the Energy Resources Conservation Board is required.

---

[93]Ibid, s. 105(2).

[94]Release Reporting Regulation, Alta. Reg. 117/93, s. 2(a).

[95]EPE Act, supra note 18, s. 51(a).

[96]Ibid.

The EUB, on the other hand, being the main regulatory agency charged with the specific control of pollution arising from oil and gas operations in the industry, is obliged to ensure that all gas operators comply with the regulations. The EUB "may require that any gas, on its production, be gathered, processed if necessary, and the gas or products from it marketed or injected into underground reservoir for storage or for any other purpose"[97] in order to prevent waste. Like many other terms in the Act, the definition of waste contains many descriptive words whose meanings are left to the discretion of the EUB.

The Act defines waste as:[98]

> The escape or the flaring of gas, if it is estimated that, in the public interest and under sound engineering principles and in the light of economics and the risk factor involved, the gas could be gathered, processed if necessary, and it or the products from it marketed, stored for future marketing, or beneficially injected into an underground reservoir.

A great controversy about what is waste has arisen among environmental groups, operators in the industry and the EUB. Operators have argued that conserving gas is not economically wise since the recovery cost is very high. Concerned members of the public, whom the effects of emissions affect, on the other hand, see wisdom in conservation of gas instead of flaring, to protect human health and the environment. The EUB on its part is concerned with balancing the various factors to ensure that gas operations are carried out in the "public interest."

---

[97]Oil and Gas Conservation Act, supra note 20, at s. 25(b).

[98]Ibid, at s. 1(x)(v).

The arguments on both sides have their flaws and they appear one sided since they do not consider all factors. Gas operators are in the first place humans subject to exposure to the effects of environmental degradation, who as businesspeople, do not want to invest in an unprofitable venture, so that environmental protection should not render oil business unprofitable. There is the need for a balanced consideration of all factors with the awareness that health is wealth and preference should be given to environmental considerations. Decisions on how much gas flaring or conservation will be allowed, should be a joint responsibility of all parties including the EUB, the operators and the public.

Operators must seek and obtain approval from the EUB before flaring gas which has a concentration of hydrogen over the permitted limit. They should design and operate all temporary flares in a safe and environmentally acceptable manner.[99]

The Regulations specify a minimum flare stack height requirement of 12 metres in dispersion of sulphur dioxide produced during flaring.[100] The EUB requires all operators to submit and maintain emergency plans which address how the operators would ensure the safety of residents in its area of operation, including evacuation procedures when there is a release of gas. These environmentally conscious requirements are lacking in Nigeria where, unlike in Alberta, unrestricted gas flaring with very short stack flare even in residential areas is the norm.

---

[99]*Environmental Regulation of Natural Gas Development in Alberta*, supra note 11, at 24.

[100]Oil and Gas Regulations, supra note 85, s. 15.240.

In spite of the successes attained with the use of the stack height in gas flaring, there is a need for the introduction of certain conditions in its use. Though, the use of high stack is expensive, it should be applied as a short-term solution and installation of certain level of emission control equipment should be a precondition for the approval of any stack height. Considering the level of available scientific knowledge on the effects of using this stack flare method to disperse sulphur dioxide emissions, alternative methods like flue-gas desulphurization devices (scrubber) should be adopted as a condition of an approval (if not already incorporated) to avoid any harmful effect which emissions from a stack flare may have on the environment. Even if an operator satisfies existing ambient standards, increased downwind concentration of emissions from stack flares may cause acid rain that is damaging to plants and animals.

The EUB may explore the possibility of applying the bubble theory in emission reduction. The bubble policy allows operators to respond to the control cost by permitting them to produce required emission reductions in the least costly manner in a given area.[101] Proponents of this theory argue that this approach produces the same net reduction in pollution as a uniform command rule controlling each stack, but at less cost and this will prevent loss of jobs or other economic values provided by the industry.[102] The problem

---

[101]Jack L. Landau, "Chevron, U.S.A. v NRDC: The Supreme Court Declines to Burst EPA's Bubble Concept" (1985) 15 Envtl. 285.

[102]Timothy A. Wilkins & Terrel E. Hunt, "Agency Discretion and Advances in Regulatory Theory: Flexible Agency Approaches Towards the Regulated Community as a Model for the Congress-Agency Relationship" (1995) 63 Geo. Wash. L. Rev. 479.

with this market-based approach is the volume of information gathering, analysis and other efforts which are required for it to be effective.

It is hoped that the ongoing efforts of the Canadian federal and provincial governments in establishing sulphur dioxide reduction programs will help in further stimulating the EUB to develop more ambitious programs to reduce air pollution in the industry.[103]

D. OIL SPILLS

Oil spills are a major cause of pollution associated with the oil industry in Alberta. The need for official reporting of oil spills was not realized in the province until 1971, though some oil operators were taking responsible attitude toward the problem before that time.[104] However, provincial attitudes changed with the establishment of the ERCB, which was charged with the responsibility[105] of controlling pollution caused by the industry's activities.

An early history[106] of the occurrence of oil spills written by some legal commentators shows a rise in their frequency, though, when compared with production within the same period, there is a decrease. In 1975, 65, 000 barrels of oil spilled from a

---

[103]Randy Ray, "Climate Change: Federal, Provincial Ministers Divided on governments' Role in Emission Cuts" (1995) 6:9 Env. Policy & L. 307-308.

[104]V.E. Bohme & E.R. Brushett, "Oil Spill Control in Alberta" [Paper presented at the 1977 Oil Spill Conference organized by the American Petroleum Institute held at New Orleans, Louisiana, 8-10 March, 1977] 91.

[105]The Oil and Gas Conservation Act, 1970. R.S.A. c. 267.

[106]V.E. Bohme & E.R. Brushett, supra, note 102, at 91-92.

production of 417 million barrels[107] of which 10% of the spills affected fresh water, with the remainder confined to the land.

Oil spills arise from several sources, including pipeline leaks and ruptures,[108] blowouts and other sources during drilling and production. There were three thousand, nine hundred leaks and breaks in Alberta between 1975 and 1991.[109] Though the figures are reducing over the years, as at 30 June, 1997, there were a total of 38,800 reported oil spills in Alberta.[110] In 1995 alone, 38 blowouts occurred in the industry, 35 of which were caused by equipment failure, with the remaining three resulting from third party acts.[111] In all, the incidence of oil spills has been greatly reduced in Alberta, compared to the figures in the early stages of oil exploration in Alberta. The reverse seems to be the case in Nigeria where oil spills and other associated incidents are a daily occurrence.

1. Legal Framework for the Regulation of Oil Spills

Jurisdiction over the regulation of oil spills in Alberta is vested in both the AEP and the EUB, with the agencies sometimes having concurrent powers to regulate and enforce

---

[107]Ibid.

[108]A pipeline leak is a small opening or crack in the pipeline causing some oil loss which may not immediately affect the operation of the pipeline, while a rapture is a major pipe opening caused by the instantaneous tearing or fracturing of pipe material, immediately impairing operation of the pipeline.

[109]EUB: The Oil and Gas Occurrence Report, 1995.

[110]Record found in Environment Information Service (E.I.S.) microfiche at the EUB. Note should be taken of the fact that many of the incidents are termed confidential and are therefore not publicly reported.

[111]See EUB: The Oil and Gas Occurrence Reports, 1984- 1995 for a complete statistics of blow out occurrences in Alberta.

compliance on same issues. The Minister of Environment, in the exercise of the general obligation[112] to undertake all acts which he considers necessary to promote the environment for the benefit of the people of Alberta and future generations, has the powers to regulate oil spills under the EPE Act.

Section 97 of EPE Act provides that all releases of substances into the environment above the approved limits are prohibited and therefore imposes duties on such polluters to control and prevent pollution. As noted earlier, oil spills fall into this category, which gives the AEP the jurisdiction to regulate such activities. The EPE Act specifically imposes a duty on all persons responsible for a spill to take remedial measures to control and prevent the spills.[113]

Section 102 also authorizes the AEP to issue Environmental Protection Orders and Emergency Environmental Protection Orders against any individual or corporation who is responsible for any substance spilled in contravention of any existing law, regulation or approval. An order may be issued against an operator even if the EUB granted him approval, provided that the Director of AEP believes the activity that is the subject of the order may have a significant effect on the environment. The Director may issue an order stopping or shutting down the operations, or suspending or cancelling an approval, or specifying measures which the operator must be take in order to effect compliance with its directives.[114]

---

[112]Ibid, s. 7(h).

[113]Ibid, at s.101.

[114]Ibid, at s. 200.

The Director is given the discretion to decide the terms on which the orders are to be carried out by the person responsible for the spill. Criminal prosecutions of an offender for violation of an order can also take place.[115] An individual offender will on conviction be liable to a fine of not more than one million dollars or to a term of imprisonment of not more than 2 years or to both. The Act imposes a fine of not more than one million dollars[116] on a corporate body on conviction.

The EUB employs the relevant empowering provisions in the ERC, EUB, and the Oil and Gas Conservation Acts and their accompanying Regulations to regulate oil spills associated with the industry. Section 28(1) of the Oil and Gas Conservation Act obligates the EUB to "take any means that appears to it to be necessary or expedient in the public interest to control and prevent the escape of oil and gas." This provision confers on the EUB the power to regulate and mitigate the problem of oil spills occurring in the industry.

Section 92 of the Act allows a member of the Board or any person authorized by it to have access to and enter on any well site or any structures on a well site in which the operator of such wells fails to control a spill according to the regulations or order of the EUB. The member of the EUB or authorized person can do acts as determined by the EUB to control such spills and the expenses for such action will be a debt payable by the operator. The EUB also has the discretion conferred by section 94 of the Act to direct any oil or pipeline operator to take steps to control an oil spill from a well or pipeline or from

---

[115]EPE Act, supra note 18, ss. 213-214.

[116]Ibid at s. 214.

an unknown source, if such an operator appears to the EUB to be responsible for the spills. This provision is very apt as it will ensure that situations of spills from unidentifiable sources are taken care of if the EUB rightfully exercises its discretion.

Section 8.050 of the Oil and Gas Regulations regulates the control of oil spills. The section provides that if any oil is spilled from a well head, tank, separator. treater or processing vessel, the operator of such wells will take immediate steps to contain and clean up the spilled oil and ensure that the contaminated product is processed in the operator's facilities or is sent to an approved waste processing disposal facility unless the EUB gives contrary directives. An operator must inform the EUB of any spill that exceeds two cubic metres which escapes from the facility.[117]

An operator or person responsible must report to the EUB and the AEP immediately if an oil spill occurs during transportation of oil by means other than a pipeline. Section 8.050(3) provides that, if the EUB directs, such reports, confirmed in writing, must be sent to the EUB within two weeks of the date of the spill and must include at least the following information:

(a) the time the spill occurred,
(b) a description of the circumstances leading to the spill,
(c) a description of the spill containment and recovery procedures,
(d) a description of steps to be taken to prevent similar future spills, and
(e) an outline of the proposed spill site rehabilitation program.

An operator of a well is also required to report any losses[118] of oil from a spill to the EUB and in a case of fire, line break or accident of a like nature, must specify the location of

[117]The Oil and Gas Conservation Regulation, supra, note 85, at s. 8.050(2).

[118]Ibid, at s. 12.140.

the well, tank, pit or line break.[119] Where a leak or break occurs in a pipeline, section 36(1) of the Pipeline Act[120] also requires an operator or permitted user of a pipeline to immediately inform the EUB of the location of the leak or break. If such breakage occurs in a Crown land or a forested area, the operator is obliged to report the location of the break and the approximate quantity of spilled oil to an employee or officer of the AEP.

Operators must report leakages or breaks occurring during the testing of pipelines to the EUB and such a report should include "the test pressure at the time of failure, the duration of the test up to the time of failure and any other information the EUB might require."[121] In all situations involving oil spills from any facilities, the operator must take immediate steps to contain and clean up the spilled oil and ensure that the contaminated oil is sent to an approved waste processing and disposal facilities.[122]

All operators are mandated to take steps to control any spill occurring in the course of their operations[123] and must keep records of any spill. They must produce the records at all reasonable times when required by any member of the EUB or any person authorized by the EUB.[124] The operator must provide assistance to any official of the

---

[119]Ibid, at s. 12.140(2).

[120]Pipeline Act, R.S.A. 1980, c. P-8.

[121]Pipeline Regulation, Reg. 284/74 as am., S. 31.

[122]Oil and Gas Conservation Regulation, supra note 83, at s. 8.051.

[123]Ibid, at s. 8.190.

[124]The Oil and Gas Conservation Act, supra note 20 at s. 85.

EUB or its authorized representative in the inspection of the records or in making copies of and taking extracts from them.

The EUB may take any steps and use the services of any person it considers necessary to control and prevent an oil spill from any well or any other facility if the operator fails to do so or to comply with the EUB's order. The EUB may take over the management and control of production from the well and may deal with and dispose of all oil, gas and crude bitumen produced from the well to defray its cost and expenses.[125] Existing penalty provisions will be discussed under enforcement philosophy.

2. Emerging Issues

Several issues arise from the legislative approach to the control and prevention of pollution resulting from gas flaring and oil spills in Alberta. Two agencies have statutory authority to make regulations affecting the industry and to enforce the regulations and this may occasionally cause confusion and a clash of interests. In this section, I will explore the various laws and regulations to see how this issue is resolved. I will also analyse how the two agencies attempt to resolve this problem and the likely defects of this approach.

The EPE Act contains some provisions which empower the Minister of AEP to adopt a cooperative approach with other agencies or departments to protect the Alberta environment. The Act enjoins the Minister to coordinate with government agencies on

---

[125]Ibid, at s. 95.

matters concerning the environment.[126] Section 21 of the Act, allows the Minister to cooperate with any government agency or other person to formulate plans for effective coordinated action in cases of an emergency to prevent, alleviate, control or stop the destruction of, loss or damage to the environment. The EPE Act does not specify the degree or limit to such cooperation.

The EUB may conduct a hearing, inquiry or investigation under the act or participate in proceedings relating to the purposes of the Act jointly or with another board, commission or other body constituted in Alberta.[127] The EUB may, with the approval of the Cabinet, also enter into agreements with any other government or agencies on matters relating to the Act.

The EUB's authority to make regulations prescribing the measures to be taken to control pollution above, at or below the surface in operations for the production of oil and gas is, however, subject to the approval of the Minister of AEP. The EUB is obliged to refer any application for approval of a scheme for the storage, treatment, processing or disposal of oil field waste to the Minister of AEP, who may impose conditions on such approval and the EUB is bound to impose the conditions on the approval. The EUB can only waive the imposition of the conditions if the Cabinet so directs.[128]

As stated earlier, the cooperative approach advocated in the existing statutes is not mandatory and the agencies may choose to adopt a separate approach to protect the

---

[126]EPE Act, supra note 18, at s. 12.

[127]ERC Act, supra note 27, at s. 23.

[128]Oil and Gas Conservation Act, supra note 20, at s. 26.

environment. Although there are no example known to this writer, the vesting of independent powers on these two agencies to regulate the control of pollution resulting from oil and gas operations could result in several potential problems.

In their zeal to carry out their duties, the agencies might make different regulations on the same activities like gas flaring and oil spills. In Alberta, the two agencies have attempted to deal with these problems by adopting several approaches in the form of agreements to define specific roles for each agency to avoid the clashes which existing divergent and concurrent legislation may cause.

a. "One Window" Process

One area in which the agencies have tried to avoid the confusions and complications associated with their exercise of similar jurisdiction in the control of oil spills and other environmental issues is the establishment of a "one window" application process.

This process is intended to simplify and streamline the application process for the review and determination of environmental requirements under the various energy statutes and the environmental legislation implemented by the AEP.[129] It involves sending of any application for approval to the EUB, which acts as the window and the EUB will in turn send such application to the AEP. AEP will coordinate the participation of all government departments, compile any application deficiency requests of an environmental nature and then transmit to the applicant through the EUB. In all

---

[129]See A. Hudec & J. Paulus, supra note 13, at 175-176.

applications for approvals, the EUB staff does draw the attention of prospective applicants to AEP air and water quality standards that must be addressed in the applications.[130]

The EUB and AEP may also issue joint policy statements on any pollution control issue.[131] They may appoint senior officials from AEP as acting EUB members, particularly for major development projects having important environmental implications.[132]

b. Memoranda of Understanding

One way in which the EUB and the AEP have tried to delimit their respective functions in order to avoid duplication and to discharge their public interest duty in the regulation of oil spills is through the signing of many memoranda of understanding(MOU). The most prominent MOU[133] in this area is the negotiated agreement between the EUB and AEP to provide an integrated and streamlined notification and reporting procedure for

---

[130]J.P. Prince, "The ERCB and the NRCB: A Response to Mr O'Ferrall" (1992) 7:3 Environmental Law Centre News Brief 3 at 5.

[131]See ERCB and Alberta Environment: Public Involvement in the Development of Energy Resources. ERCB-AE Informational Letter IL 89-4, 22 June, 1989.

[132]The ERCB Public Hearing Process, ERCB Guide G-16, undated at 4.

[133]A Memorandum of Understanding between Alberta Environmental Protection and the Alberta Energy and Utilities Board Regarding Coordination of Release Notification Requirements and Subsequent Regulatory Response. EUB Informational Letter IL 96-10, 20 September 1996.

spills, including cumulative releases. This MOU, which updates and supersedes an earlier informational letter (IL 94-5),[134]is designed to:[135]

> Provide an integrated and streamlined notification and reporting procedure for industry and the public through a "one-window" approach, to the greatest degree possible;
> ensure consistent notification and reporting requirements are in place for industry;
> optimize the efficient use of resources available to both organizations;
> ensure a coordinated and integrated response to complaints or emergencies between the regulatory agencies; and
> provide for good inter-agency communication.

The objective of this and similar MOU's is to fill the gap left by the enabling legislation, but they do not override any existing acts, regulations or approvals of either organization.

Agreements in the nature of MOU's are statements which do not impose any legally binding obligations on the signatories and as such they cannot affect other channels of action of any or all of the agencies.[136] The statements contained in the MOU without regulatory backing may not legally affect any operator who refuses to comply with any requirements in such agreement since the MOU alone has no force of law.

EUB and the AEP make these MOUs with the purpose of delimiting the scope of each agency and to impose practical binding norms on themselves and the oil operators to whom the MOUs are also addressed. The courts have not adjudicated on the binding nature of MOU, but they are likely to declare that the MOU alone does not bind the industry, based on the reasoning that MOU is not a legislative instrument nor is it a

---

[134]EUB Informational Letter 94-5, Oil and Gas Industry Notification Requirements.

[135]EUB Informational letter, supra note 133 at 1.

[136]Practising Law Institute, "Principles for Memoranda of Understanding" (1992) 769 PLI/Corp 471 at 472.

contractual agreement between the EUB and the regulated industry, as the oil operators are not parties to the agreements.

However, in any case of infringement of the regulations or content of the MOUs, the agencies will react based on their powers emanating from the existing legislation. Even when it is apparent that they are acting on the content of the MOUs, they can further argue that the contents of the MOUs have become part of the regulations they have made which they have the powers to enforce.

E. *ENFORCEMENT PHILOSOPHY*

Environmental laws and regulations without an efficient enforcement machinery would be virtually non-existent, as any resulting environmental problems would probably remain unsolved. They would be comparable to the hortatory laws in Nigeria where oil operators are encouraged to control pollution with no sanctions attached for non-compliance. I will assess the applicable enforcement philosophy in Alberta to analyse its efficiency in the control of oil spills and gas flaring in the industry. For this study, I will review the enforcement provisions in the various statutes and regulations to show the powers conferred on the regulatory agencies. I will then critically examine the enforcement approach applied by the EUB to see its advantages and to advocate an alternative.

The Director of AEP may issue an enforcement order (EO) to any person whom he thinks has contravened the Act, whether or not the person has been charged or

convicted in respect of the contravention.[137] The order must state the reasons for making it and must be served on the person to whom it is directed.[138] An E.O. may be used to cancel or suspend any approval, shut down any activity or operation permanently or for a specified period, until compliance is achieved.[139]

As the Minister or his delegate (the Director) is empowered to take all measures necessary to protect human life, health or the environment,[140] he may apply to the court for an order directing compliance with an EO.[141] The AEP may charge an operator for contempt of court if the operator fails to comply with a court order obtained through this process.[142] Under section 204 of the EPE Act, the Director may take any necessary action to carry out the terms of an order, including prosecuting an offender for breach of an EO or EPO, and then recover the cost from the polluter.

While it is conceded that these powers conferred on the Minister or his delegate are of general application in the province, there are few instances, if any, where they have been exercised. Some learned writers have argued that "in practice, however, the

---

[137]EPE Act, supra note 18, at s. 200.

[138]Ibid at s. 200(3).

[139]Ibid, at s. 200(1)(2).

[140]Ibid,

[141]Ibid, at s. 203.

[142]See *Alberta Minister of the Environment* v. *SCA Waste Systems Ltd.*, [unreported] Alta Q.B., Red Deer, Suit No. 910001097, November 25, 1991, where the defendant was convicted of contempt and sentenced to 30 days in prison among other fines for failing to comply with control orders which were later made court orders.

government of Alberta rarely, if ever, uses control orders or prosecutes."[143] However, unless compliance is obtained in any event, merely stating the law without applying it when there is non compliance does not enhance the efficiency of pollution control measures.

1. EUB

The EUB as the major regulator of oil operations has been vested with several enforcement powers under various statutes and regulations. Under section 7 of the Oil and Gas Conservation Act, the EUB is allowed, with the approval of the Lieutenant Governor in Council, to make any just and reasonable orders and directions which might not have been specifically authorized in order to effect the purposes of the Act.

Wide discretionary power[144] is also conferred on the EUB to enforce its orders. The EUB may, among other things, take any steps necessary for enforcement, such as taking possession of a well and associated property, discontinuing or controlling production, plugging the well, or taking other measures to control or prevent the flow or escape of hydrocarbons or water. The EUB is entitled to recover any cost or expenses incurred by it in the enforcement of its orders.

Contravention or non compliance with the provisions of the Oil and Gas Conservation Act or of the Regulations, or any order or direction of the EUB, or any term

---

[143]Stephen Garrod & Marcia Valiante, *The Regulation of Toxic and Oxidant Air Pollution in North America* (Toronto: CCH Canadian, 1986) 104. See also A.J. Hudec & J.R. Paulus, supra, note 13, 173.

[144]Oil and Gas Conservation Act, supra, note 20, s. 95.

or condition of a licence is an offence under the Act.[145] A corporation found guilty of an offence under the Act is liable to a fine of not less than three hundred dollars nor more than one thousand dollars, and others to a fine of not less than fifty dollars nor more than five hundred dollars. Non payment of the fine may attract a term of imprisonment not exceeding six months. The penalties stated under the Oil and Gas Conservation Act are far less than those stated in the EPE Act and it is obvious that an amendment is required to reflect the realities of the times in the Oil and Gas conservation Act.

In the following section, I will critically assess how the regulatory agencies, particularly the EUB, apply these powers in the industry.

2. Enforcement Approach

Available records show that there are cases of oil spills and gas flaring resulting from oil operations in the industry. In recent times, however, there have been a great reduction of incidences of this nature. The questions that are imperative at this stage are: how does the EUB enforce compliance with its regulations, orders and the existing laws and what are the merits and demerits of its approach?

---

[145]Ibid, s. 97.

Legal writers[146] are agreed that, as is common throughout Canada, the regulatory agencies in Alberta resort to bargaining and negotiation instead of enforcement in the strict sense to ensure compliance with regulations in the industry. Bargaining and negotiation with industry is adopted by the EUB in preference to sanctions because it views its mandate as one of regulation as opposed to a police-type surveillance, which it considers to be impractical. Changing developments in the industry and increased public concern with environmental matters and a dissatisfaction with the adversarial public hearing process have been attributed to the adoption of this approach by the EUB.[147]

Professor Thompson suggests that behind the adoption of this approach, "lies in the knowledge gaps and uncertainties that pervade environmental issues."[148] Under this approach, the EUB expects that all operators will understand its requirements and ensure that they have the approved infrastructure in place to comply with the EUB's regulations. In any case of violation of the laws and regulations, the EUB does not apply additional actions against a company which identifies the violation and takes appropriate measures to remedy the situation. The EUB issues written warnings to operators who are in breach of any regulation and it may withhold and or suspend permits, licenses, approvals,

---

[146]A.R. Thompson, *Environmental Regulation in Canada* (Vancouver: Westwater Research Centre, 1980) at 33-35 and Elizabeth J. Swanson, "Reform Issues" in Elizabeth J. Swanson & Elaine L. Hughes, *The Price of Pollution: Environmental Litigation in Canada* (Edmonton: Environmental Law Centre, 1990) 202. See also "Submission of the Energy Resources Conservation Board to the Review Panel on Environmental Law Enforcement" in *Submissions to the Review Panel on Environmental Law Enforcement in Alberta* (Edmonton: Department of Environment, 1987) 6:1, where the EUB, in its submission, describes its approach as compliance by communication and moral suasion.

[147]V. Millard, "Recent Experience in Alberta with Public Involvement and Environmental Negotiation in the Energy Industry" (1987) 2:2 Can. Env. Mediation Newsletter 1.

[148]A.R. Thompson, supra note 146.

transfers, and services from operators that refuse to comply with the regulations. As a last resort, the EUB may apply its rarely used power to shut down an operator's facilities until it is satisfied that the operator has complied with its directives.

The hallmark of this approach is the emphasis placed on the use of informal, voluntary arrangements between the EUB's staff and the operators in resolving disputes and achieving compliance with the regulations. Prosecution is resorted to (if at all) as a last means. To the EUB, this approach is quick, inexpensive and fair in attaining environmental objectives and preferable to prosecution, in order to avoid the unwieldiness of formal legal mechanisms.

This non adversarial approach adopted by the EUB is practical and more in touch with the free market economy under which the system operates. The EUB endeavours to balance the interest of the government, the regulated industry and the public through this policy. Prosecution of operators for every offence committed may divert the attention of such operators to the resulting litigation and this could discourage investment in the industry.

Negotiation and bargaining also "promotes an atmosphere of cooperation, reasonableness and understanding"[149]and allows for flexibility by the regulators to relate

---

[149]Eugene E. Kupchanko, "A Case of Compliance Through Administration of Licences and Permits" in Linda F. Duncan, ed., *Environmental Enforcement* (Edmonton: Environmental Law Centre, 1984) at 9. [hereinafter Environmental Enforcement]

with operators on a case by case basis. According to some learned writers, informal negotiation between the regulators and the operators achieves the following goals:[150]

> (1) a reduction in the risks to the parties associated with uncertainty of win-all or lose-all litigation;
> (2) a reduction in court costs, legal fees, inflationary delays, and other conflict-related expenses;
> (3) an increase in the efficiency of the outcome (an outcome is more efficient if all disputants or stakeholders prefer it to all feasible outcomes);
> (4) an increase in the likelihood of achieving a stable agreement.

The compliance with the regulations, which is obtained through this approach in Alberta, supports the views of these writers and renders unnecessary the need for prosecution. However, one may argue that the apparent lack of aggressive prosecution which characterises the present regime raises so me serious questions about the enforcement process. It appears unrealistic to assume that a policy of compliance based on cooperation or bargaining between the regulators and the regulated industry alone is an adequate means of enforcement. Some negotiations can be so time-consuming and expensive so that the problem sought to be controlled or prevented may have caused severe harm before the EUB can take any action.

Some advocates of prosecution argue that because of the "ambiguous, murky world without clear structures and rules"[151] in which negotiation and bargaining operates, regulatory agencies should adopt an adversarial approach in enforcing compliance. This

---

[150]Lawrence Susskind, Lawrence Bacow & Michael Wheeler, eds., *Resolving Environmental Regulatory Disputes* (Rochester, Vermont: Schenkman Publishing, 1983) 2.

[151]Kernaghan Webb, "Between Rocks and Hard Places: Bureaucrats, Law and Pollution Control" in Allan Greenbaum, Alex Wellington & Ellen Baar, eds., *Social Conflict and Environmental Law: Ethics, Economics and Equity, Volume 2* (Canada: Captus Press, 1995) 86 [Hereinafter called *Social Conflict*].

approach deters polluters, as no reasonable operator wishes to be a convicted polluter. Prosecution is the last alternative for dealing with a recalcitrant polluter. As Swaigen has aptly stated:[152]

> where companies are negligent, or violate standards deliberately, where they ignore repeated warnings or requests by authorities, where they know of problems but prefer to spend money on expansion of their business rather than pollution abatement, where they violate permits or orders which they have an opportunity to shape before these permits or orders have been finalized, prosecution is often the appropriate response.

Prosecution will therefore help to preserve the morale of law abiding oil operators by showing them that their sacrifices have not been, and will not be in vain and polluters will be stopped from having an unfair advantage over environmentally conscious operators. It is conceded however that based on the huge cost of prosecution, long duration of litigation and cost of getting experts needed to establish guilt in courts, the adversarial approach should be used rarely in the industry.

The prosecution approach may provide the clout needed by the EUB to gain and retain the advantage over operators in the negotiation processes, particularly when prosecution does not stop negotiations and bargaining with the operators to comply with the regulations or order of the EUB. Prosecution therefore gives added leverage to the EUB in obtaining immediate compliance. Swaigen agrees that enforcement through prosecution enhances the credibility of any regulatory agencies in the eyes of the victims, environmental groups, the public and the press.[153]

---

[152]John Z. Swaigen, "A Case for Strict Enforcement of Environmental Statutes" in *Environmental Enforcement*, supra note 149, 2 at 4.

[153]Ibid.

I advocate the adoption of a hybrid of the bargaining and negotiation and prosecution approaches in the enforcement of environmental regulation in the industry. The bargaining and negotiation approach is appropriate considering the political, economic and a social role of oil as a resource in the province. It assures investors of the security of their investments. The uncoordinated and arbitrary application of laws and regulations, which may result in withdrawal of their operating licences without due consultation, is avoided. The approach thus prevents the arbitrary use of the coercive powers of the state against operators. For some situations where revocation of permits or approvals may not be adequate, the EUB should prosecute operators who negligently refuse to control pollution.

Unless the EUB relies on the underlying offence committed by an operator to prosecute such operator, the operator may renege in fulfilling agreements made during negotiation and bargaining, without incurring any adverse legal consequences as the operator may argue that the agreements entered into during negotiation and bargaining alone are not binding but are mere voluntary promises. The alternative process of prosecution is therefore necessary. While advocating the need for enforceable agreements, Thomas Schelling stated that:[154]

> Enforceable promises cannot be taken for granted.
> Agreements must be in enforceable terms and involve enforceable types of behaviour. Enforcement depends on at least two things-some authorities somewhere to punish or coerce, and an ability to discern whether punishment or coercion is called for.

---

[154]T.C. Schelling, *The Strategy of Conflict* cited in Murray Rankin & Peter Z.R. Finkle, "Environmental Regulation as a Bargaining Process: The Canadian Approach" in Social Conflict, supra, note 151 at 106.

The EUB should invoke its powers under the ERC, Oil and Gas Conservation Acts and other associated Acts and Regulations to effect the use of this hybrid approach to enforcement. Section 50 of the ERC Act provides legal authority for the adoption of this approach. The section provides that:

> If the Board has more than one remedy for the enforcement of an order or for the payment of money payable to it, the Board may resort to any or all of those remedies from time to time as it thinks proper, either concurrently or successively, until the order has been complied with or the money payable under it together with all costs and expenses has been paid and satisfied.

Similarly, effective enforcement and compliance policies will ensure that the EUB takes care of the interests of all affected parties. This will avoid the possibility of operators refusing to comply with existing regulations as they are aware that the EUB will not only bark but bite if necessary.

G. An Assessment

I have attempted in this chapter to examine the regulation of oil spills and gas flaring in the industry in Alberta. Evidence shows that the incidence of oil spills is on the decrease and a gas conservation rate of over ninety per cent has been achieved in the industry. AEP and the EUB are the two agencies vested with discretionary powers to regulate environmental matters affecting the industry and the EUB is specifically obliged to control pollution resulting from oil and gas operations.

However, an examination of existing legislation shows that the agencies' overlapping jurisdiction on similar matters may result in potential problems. The agencies have attempted to solve these problems by adopting several measures which include the establishment of a "one window process" for approving applications for proposed energy projects and entering into memoranda of understanding to specify the extent to which the powers of each agency will be exercised.

The EUB adopts the bargaining and negotiation approach to enforce compliance with the regulations as opposed to strict prosecution. No additional measures are taken against operators who identify a pollution problem and make efforts to rectify the situation. The EUB penalizes violations of regulations by issuing written warning notices. withholding or suspending permits or approval granted to an operator depending on the seriousness of the offence or pollution.

The EUB ensures the protection of the public interest by making it one of the factors to be considered in the grant of a permit or approval for the carrying out of an energy activity. Affected members of the public are also given opportunity to express their concerns during an inquiry, investigation or hearings conducted by the EUB. AEP allows public participation during hearings on the environmental impact of proposed energy projects.

Operators must ensure that proposed pollution abatement facilities comply with the best practical technology before the EUB can give approval for the use of facilities in the industry. The stack flare method is used in the flaring of the remaining eight per cent of unconserved gas in the industry.

Based on the above analysis of the regulatory experience of Albertan oil and gas industry, I proffer the following suggestions for improvement.

Apart from the periodic reports made to the legislature which do not include an examination of the exercise by the regulatory agencies of their discretionary powers, it is suggested that the EUB's activities should be more open to public scrutiny. Opportunity should be given to members of the public to participate in decision-making, especially during an inquiry or hearing on applications for a proposed energy project. The EUB should set out clear standards which affect such decisions. It is not enough to approve every application for energy project because it is economically viable to do so.

Innovations should be introduced in the best practical technology approach presently used in the industry. One of the criteria should be whether the proposed facility meets comparable modern standards in the industry. The EUB should compile a list of pollution control equipment which any proponent may choose from and approval will then be given after considering several factors including size of the proposed project, type of activity and economic strength of the proponent. The EUB can explore the possibility of establishing a division that will advise members on technology assessment.

The application of the hybrid enforcement approach which I suggested earlier in this chapter will stimulate compliance by the operators. The government must realise that highly technical and professional staff are required to effectively regulate the industry and that allowing the EUB to be affected by current cutbacks may be doing great harm to environmental protection.

The next chapter will include a discussion of the lessons which the regulators in Nigeria will learn from the Alberta experience in the regulation of oil spills and gas flaring.

ENVIRONMENTAL REGULATION OF THE OIL AND GAS INDUSTRY IN NIGERIA - LESSONS FROM ALBERTA'S EXPERIENCE

> No country can ignore the need to rethink its arrangements for the management and regulation of that part of the environment to which it is responsible.[1]

A. INTRODUCTION

Degradation caused by pollution resulting from oil operations has affected human health and the environment and has drawn global attention, since environmental degradation knows no boundaries. Oil spills and gas flaring are the two major problems associated with oil operations that provide the focus of this comparative study.

A comparative study of environmental regulation of the industry in Nigeria and Alberta is very instructive, because of the stark contrast between the regulation of the industry in a developing and a developed country. I will assess the varying environmental attitudes toward oil operations of both jurisdictions in the light of the importance of oil as a major revenue source in the economy of the two countries.

---

[1]See statement credited to the late Chief judge David Bazelon of the U.S. court of Appeals for the District of Columbia Circuit, quoted in Professor Patrick McAuslan, "The Role of Courts and Other Judicial Type Bodies in Environmental Management" (1991) 3:2 J. Environmental L. 195.

In this chapter, I will attempt to analyse the peculiar situations that affect environmental regulation of the industry in the two jurisdictions. The lessons learnt from the Alberta experience in its regulatory efforts will be discussed, to examine whether similar regulatory efforts are feasible in the Nigerian industry. I will also make recommendations that will help in the efficient and effective functioning of environmental regulation in Nigeria and Alberta bearing in mind the peculiar circumstances of the different jurisdictions.

B. *FACTORS INFLUENCING ENVIRONMENTAL STANDARDS*

Before embarking on a comparative analysis of the regulatory regimes of Nigeria and Alberta and the lessons to be learnt by Nigeria from Alberta's experience, I must state at the outset that there are limits to drawing valid comparisons between a developing country, such as Nigeria, and a developed jurisdiction, such as Alberta.

This conclusion can be attributed to several factors which influence the attitudes of both jurisdictions toward environmental protection. Pathak has cautioned, rightly in my view, that "in applying environmental standards, special factors affecting environmental policies in the developing countries should be borne in mind."[2] For according to Schoenbaum, "standards that are valid in the developed countries may be

---

[2]R.S. Pathak, "International Trade and Environmental Development: A View from India" (1994) 1 Ind. J. Global Legal Studies 335 at 337.

inappropriate and of unwarranted social cost for the developing countries."[3] Expecting or imposing similar environmental standards in developed and developing countries may therefore be wrong. It may be unfair and unnecessarily costly because developing countries do not have the financial resources and essential infrastructure to control pollution.[4]

Generally, developed and developing countries differ in their regulatory experience and in public acceptance of environmental regulation. Developed countries have a tradition of citizen involvement, which is an important factor in exerting pressure on any government for the enactment and enforcement of environmental regulations. Citizen involvement in environmental regulation is lacking in the developing world and this has affected the enactment and enforcement of environmental laws in such countries. Residents in the developed countries are informed about environmental impact of pollution caused by the industry and are therefore more willing as well as more able to pay for any cost that might be required to enhance environmental protection.[5]

The desire to administer and enforce existing environmental law is also very low in the developing countries. This is because of the economic problems[6] with which the

---

[3]Thomas J. Schoenbaum, "Free International Trade and Protection of the Environment: Irreconcilable Conflict? (1992) 86 Am. J. Int'l L. 700 at 727.

[4]Gerald Brooks, "Environmental Economics and International Trade: An Adaptive Approach" (1993) 5 Geo. Int'l L. Rev. 277 at 288.

[5]Dennis Hryciuk, "Albertans Happy to Pay for Cleaner Air, Poll Finds" *The Edmonton Journal* (29 November 1997) A1. According to the survey, fifty-two per cent of the residents in Alberta support increase in gasoline taxes to help reduce greenhouse gas emissions.

[6]Chudi Ubezonu, "Doing Business in Nigeria by Foreigners: Some Aspects of Law, Policy, and Practice" (1994) 28 International Lawyer 345 at 346. The writer stated that Nigeria has a gross national

governments of such countries are confronted. There is a lack of basic necessities and infrastructure. The developed countries on the other hand, have the financial resources and the independent regulatory agencies required to effectively control pollution resulting from oil and gas operations.[7]

Political factors also influence the regulatory regime in developed and developing countries. Environmental protection is now a major element in campaigns for political office in developed jurisdiction (including Alberta) and electoral success can on occasion depend on a candidate's views on environmental protection. Most developing countries such as Nigeria have leadership problems and some are under military governments. Nigerian military leaders are more concerned about amassing oil wealth for themselves[8] than enhancing environmental protection. Professor Okeke's observations that "successive Nigerian [military] governments since Nigeria's independence in 1960, have utterly failed, even in the face of an existing environmental legal framework, to adequately deal with the nation's environmental problems"[9] present a picture of the Nigerian situation.

The type of environmental standards to be expected from a military government in a developing country is another issue that arises from this analysis. The question has not

---

product (GNP) per capita of $340 (US) and an external debt of more than $27 billion U.S. dollars.

[7]Alan Neff, "Not in their Backyards, Either: A Proposal for a Foreign Environmental Practices Act" (1990) 17 Ecology L.Q. 477.

[8]Howard W. French, "Deadly Logic in Nigeria" *N.Y. Times* (12 November 1995) 18. The writer alleged that General Sanni Abacha, Nigeria's present head of state, is now a billionaire while senior military officials of his government are comfortable multimillionaires because of their control of the industry.

[9]Chris N. Okeke, "Africa and the Environment" (1990) 3:24 Ann. Surv. Int'l & Comp. L. 37 at 46.

been much discussed in the literature. However, experience has shown that military regimes are more concerned with rapid economic growth, so that they allow industry to pollute and exploit resources at will without regard to environmental protection.[10] Military governments especially in Nigeria do not pursue environmental protection. Prince Ajibola, a former judge of the International Court of Justice and Attorney General of Nigeria gave reasons for this military attitude.[11]

> Military regimes have always been said to be corrective regimes in the sense that they claim to have the self-ascribed duty to pull the country out of the economic and social miasma in which it found itself under previous governments. The mere fact of this declaration means that a situation akin to a state of emergency exists in the country; that all is not well in its socio-economic milieu. In instances such as this, one cannot reasonably expect that all the rights of citizens hitherto enjoyed will be unaffected... all rights can be withdrawn, or modified if the interest[s] of the state so determine.

The abnormal political situation which has existed for more than thirty years in Nigeria has affected environmental regulation of the industry. This is more obvious considering the fact that the government officials appointed to regulate the industry are alleged to have close personal and financial ties with the industry and are therefore hesitant to enforce environmental regulatory laws which may work against their self-interest.

In the absence of any contrary example, it is correct to submit that little or no environmental standards should be expected under a military regime, as the marginal

---

[10]Scott C. Lacunza, "From Dictatorship to Democracy: Environmental Reform in Chile" (1996) 19 Hastings Int'l & Comp. L. Rev. 539 at 543-544. The writer referred to the General Augusto Pinochet Ugarte led military government in Chile (1973-1990) which left the country in a "state of ecological disaster".

[11]Bola Ajibola, "Human Rights Under a Military Rule in Africa: The Nigerian Experience" cited in Okechukwu Oko, "Lawyers in Chains: Restrictions on Human Rights Advocacy Under Nigeria's Military Regimes" (1997) 10 Harv. Hum. Rts. J. 257 at 289.

utility of environmental regulation compared with that of economic growth is very small. More over, military governments perceive strict environmental regulations as an anti-developmental hindrance to the achievement of their economic goals.

Due to lack of the required capital to invest in the industry and the capital intensiveness of the oil business, oil producing developing countries have always resorted to foreign investors in the exploration and production of oil and gas in order to increase their revenue base and create employment opportunities for their citizens. The economic disparities between the government and these multinational corporations have affected environmental regulation of the industry, in that developing countries, such as Nigeria, bow to pressures from these multinational oil corporations and therefore refuse to strictly enforce their environmental laws. Multinational oil corporations carry out oil operations without ensuring environmental protection. Such oil corporations argue that they have complied with existing environmental regulation in those jurisdictions. Multinational oil corporations in the developed world comply strictly with environmental regulations knowing that the environmentally sensitive public will take necessary action for any damages or environmental harm suffered as a result of their operations.

Despite the appreciable efforts[12] by international law to control pollution arising from oil operations through various international conferences and the accompanying declarations, there appears to be few positive results especially in the regulation of the activities of multinational oil corporations. Many international environmental laws are

---

[12]See Rio Declaration on Environment and Development, (1992) 31 I.L.M. 874, Charter of the Economic Rights and Duties of States, U.N.G.A. Res. 3281 (XXIX), 12 Dec. 1974, Art. 30.

non-binding, though a growing number of commentators argue that such laws reflect principles of existing customary international law.[13] Some international law principles also hinder the attempts to curb the excesses of the oil corporations,[14] but most environmental regulation is a matter of domestic or national law. Principle 2 of the Rio Declaration states that:[15]

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

The failure to comply with the above principle appears not to draw international sanctions until the resulting pollution crosses national boundaries. Extraterritorial application of national legislation is also discouraged.[16] But I agree with the editors of Harvard Law Review that:[17]

> [D]ue to the weakness of the international environmental regime and the difficulty of obtaining the adherence of all states to strict environmental standards, extraterritorial regulation by states with strong environmental regimes is in many instances the best hope for effective legal action.

---

[13]Linda Reif, "International Environmental Law" in G. Thompson, M.L. McConnell & B. Huestis eds., *Environmental Law and Business in Canada* (Ontario: Canada Law Book, 1993) 71 at 91 and A. Kiss & D. Shelton, *International Environmental Law* (Ardsley-on-Hudson: Transnational Publishers, 1991) at 130-131.

[14]See Jonathan Fisher, "NEPA, NAFTA and Cross-Border Electric Generating Projects" (1994) Geo Inter'l Env. L. Rev. 277 at 297-298.

[15]Rio Declaration, supra note 12 at principle 2.

[16]Jennifer A. Purvis, "The Long Arm of the Law? Extraterritorial Application of U.S. Environmental legislation to Human Activities in Outer Space (1994) 6 Geo. Int'l Env. L. Rev. 455 at 460.

[17]"Trends in International Environmental Law" (1992) Harv. L. Rev. 146 at 153.

Host states of multinational corporations should, as a matter of foreign policy and interest in global environmental protection, make it obligatory for those corporations to apply similar environmental laws in their subsidiary companies in the developing world.

The fears expressed in some quarters that logistical, technical and financial difficulties will hinder the extraterritorial application of national laws can be allayed by making sure that the enabling legislation makes it mandatory for the corporations to pay for the cost of monitoring, investigation and other enforcement expenses that may be incurred in ensuring that they comply with such application. Victims of environmental degradation caused by the multinational corporations should be allowed to bring legal action against polluters in their parent or in host countries. The broad jurisdictional powers conferred on U.S. courts to hear claims of victims of environmentally harmful activities of U.S. companies that occur in the territories of other states is a worthy example.[18]

Every country has the obligation to protect and improve the environment for present and future generations and to cooperate with other states to control and prevent pollution arising from all human activities. No defence avails any nation in adopting a lax regulatory regime, nor does the quest for economic buoyancy, as the cost of unsuitable growth may be higher than profits from the growth.[19]

---

[18]"Extraterritorial Environmental Regulation" (1991) 104 Harv. L. Rev. 1609 at 1618.

[19]Robert F. Housman & Durwood J. Zaelke, "Making Trade and Environmental Policies Mutually Reinforcing: Forging Competitive Sustainability" (1993) 23 Envt'l. L. 545 at 559.

C. LESSONS FROM ALBERTA'S EXPERIENCE

This study has shown that a yawning chasm exists in attitude, commitment and legislative approaches between Nigeria and Alberta. Nigeria must increase her environmental efforts if the desire to exploit oil and gas and to increase revenue is not to result in grave national and international calamities. Nigeria could gain immensely from the Alberta's experience. While I concede that environmental regulation in Alberta is not foolproof yet, many of its regulatory approaches are worthy of emulation.

The two main regulatory agencies, AEP and EUB, have explored various ways to delimit the scope of their operations to avoid uncoordinated and confusing regulations which the concurrent regulatory powers could potentially cause. These include entering memorands of understanding and the establishment of the 'one window' process for the grant of approvals, permits and licences. The adoption of this approach in Nigeria would prevent the present conflicts between the DPR and the FEPA in the regulation of the industry.

The EUB is given independent and quasi-judicial powers to regulate oil and gas operations. The EUB's membership is composed of seasoned professionals and technically qualified staff who receive salaries commensurate with industry standards[20] and whom the regulated industry cannot easily manipulate. These factors in addition to the power to shut down any facilities of a pollutering operators help in ensuring immediate compliance by oil operators.

---

[20]D.W. Morris, "Personal Communication" (EUB Office, Calgary) 21 May 1997.

Environmental impact assessment reports are made by a proponent of any energy project and the proposed project may be subjected to a public hearing by the EUB to ensure that all concerns are adequately taken care of. Members of the public who may be directly or adversely affected by a proposed oil and gas project are given the opportunity to express their concerns. A similar approach will go a long way in reducing the incidents of sabotage associated with the Nigerian industry.

Funding arrangements for the EUB include government allocations and proceeds from licences and other approval fees. The EUB does not therefore depend exclusively on the government for funds to execute its programmes. A degree of financial independence enhances any regulatory regime, which is absent in the present Nigerian situation where agencies staff have to depend on operators for vehicles to carry out monitoring and investigations. Nigeria regulators should adopt an equivalent EUB's funding mechanism, as it may be feasible.

Considering the various problems associated with prosecution as an enforcement philosophy, the EUB adopts a negotiation and bargaining approach with operators in the making of and compliance with regulations. Any operator who causes pollution but takes immediate remedial action to control the problem is not subjected to further sanctions by the EUB. In severe cases of blatant disregard for regulations, the EUB may order the shut down of an operator's facilities until the operator complies with the regulations.

In spite the attainment of a gas conservation rate of ninety-two per cent, flaring of gas is allowed if an operator uses approved pollution abatement equipment that must comply with the best practicable technology in the industry. Incidents of oil spills are on

the decrease and corporate emergency response facilities are put in place in case of any occurrence. All operators have individual facilities which must comply with the EUB's approved standards.

The emphasis of the legislation is not to prohibit absolutely oil spills or gas flares, but to ensure that any spill or gas flare must comply with approved standards. The EUB adopts this realistic approach knowing that the total prevention of pollution in one form or the other may not be feasible. It must be indicated here that the EUB-style may be useless under the existing situation in Nigeria in the light of concerns over corruption, cost of acquiring pollution abatement equipment etc. Further discussion will follow under the recommendations.

D. RECOMMENDATIONS

This comparative study has revealed the differences in commitment and legislative approaches by Nigeria and Alberta in the regulation of a vital resource like oil and this will enable both jurisdictions to enhance environmental protection in the industry. The first broad conclusion that can be drawn is that before Nigeria can make any meaningful progress towards environmental protection, a certain amount of infrastructure must be instituted.

Nigeria should establish an independent regulatory agency such as the EUB. The agency should be mandated to manage and regulate the resources in order to control and prevent pollution resulting from operations associated with the industry. The independent

agency should be vested with discretionary powers to adjudicate, arbitrate, carry out inquiries, monitoring and investigations in the regulation of the industry. The use of an independent agency will even be to the advantage of the government, as it will help to deflect criticisms presently levelled against governmental attitudes to environmental regulation. Decisions, which may be politically controversial on environmental matters, will be the sole responsibility of the agencies.

The agency should have the legal authority to restrain polluting offenders, instead of the present delegated authority enjoyed by the agencies, which exists at the pleasure of the Minister under Nigerian law. However, subjecting the decisions of the regulatory agencies to judicial review will ensure political accountability.

The new agency should be empowered to employ its own staff. The Board should consist of highly trained, experienced and professional people in oil and gas and environmental matters. Appointed board members should be people of integrity and honour. Apart from periodic government allocations, the agency should be allowed to generate funds for its purposes through approval and other applications fees. However, the feasibility of this type of organ is in doubt under the present military-political dispensation in Nigeria. It is hoped that a credible civilian government will explore the establishment of this model approach and make the protection of the environment its priority.

On the other hand, within the existing Nigerian structure, changes can be made which would be effective in the regulation of the industry. Under the present arrangement in Nigeria, the DPR is under the Ministry of Petroleum and Mineral Resources and is

mandated to control pollution in the industry, while the FEPA only play supportive role. The FEPA can be given a wider mandate to manage and control pollution in Nigeria similar to the role of the EUB in the Alberta, while the DPR can represent the government's general environmental interest in the industry, in a manner similar to the AEP in Alberta. The FEPA can be the 'one window' in the grant of approvals and licences connected with energy projects.

Hortatory provisions should be expunged from Nigerian environmental legislation and operators should be made accountable for any pollution caused by their operations. Apart from clean up operations, they should pay adequate compensation to all those affected by their operations. As a first remedial measure, a purely penal approach should be adopted to control environmental degradation presently experienced in the Nigerian environment caused by oil operators. The adoption of the bargaining and negotiation approach, which seems to be effective in Alberta could be considered in due course.

Emphasis should be laid on gas conservation and the remaining gas should only be flared with pollution abatement equipment that meets the best practicable technology standard. A list of the approved equipment should be made available to operators both in Nigeria and Alberta by the regulatory agencies.

Privative clauses in the existing legislation may be removed to expose the regulators' discretionary decisions to judicial accountability through judicial review. Judges should extend judicial activism and review traditional common law principles on access to courts in favour of citizens and environmental groups in environmental matters.

Every operator should carry out preventive surveillance such as weekly aerial patrols over its main pipe lines. They should carry actual on-site inspections out in known areas of instability, whenever possible.

Cooperation among the government, operators and the inhabitants can reduce or prevent the problems of sabotage of oil producing communities. The government should be willing to share a reasonable percentage of oil revenue with the people in oil producing areas. This may take the form of essential social services, such as potable water, electricity, schools and hospitals. The oil operators should also employ skilled and unskilled workers from these areas and make prompt payment of compensation to affected people. Oil companies should provide the public, especially in oil producing areas with proper training materials, seminars/workshops, public enlightenment programs and other expert services for abating and controlling oil spills and other environmental problems associated with the industry.

While bargaining and negotiation may be an effective enforcement tool in ensuring compliance in the industry, I contend that the EUB should also use a prosecutorial approach to avoid making unnecessary concessions to operators that may ultimately cause environmental harm, all in the name of economic development.

In line with the preventive approach, there is a need for a well organized environmental impact assessment process report to be completed at the expense of an operator before the commencement of a proposed energy activity in Nigeria.

E. CONCLUSION

This study has attempted to discuss the existing state of environmental regulation in the oil and gas industry in Nigeria and Alberta. As the findings have shown, the government and the industry in Nigeria are more concerned about revenue and profits from oil than addressing the problems caused by exploration and production on the environment. Existing legislation in Nigeria calls for a serious review to resolve the present conflicts and supremacy struggle between regulatory agencies and the ambiguities of the statutory provisions. The constraints facing developing countries in environmental regulation further compound environmental protection objectives in Nigeria.

I anticipate that the regulatory experience of Alberta examined in this thesis and the recommendations proposed at the end will achieve a twofold effect. First, they will stimulate the government and oil operators in Nigeria to pay more attention to environmental protection, since it has been established in this study that consideration of environmental impacts will not hamper economic development of oil and gas activities. Secondly, they will encourage a more aggressive approach to environmental regulation in the two jurisdictions.

BIBLIOGRAPHY

BOOKS

Akanle, O., *Pollution Control Regulation in the Nigerian Oil Industry* (Lagos: N.I.A.L.S., 1991).

Garrod, S. & Valiante, M., *The Regulation of Toxic and Oxidant Air Pollution in North America* (Toronto: CCH Canadian, 1986).

Gore Al, *Earth in the Balance: Ecology and the Human Spirit* (New York: Houghton-Mifflin, 1992).

Kennett, S.A., ed., *Canada Energy Law Service* (Scarborough, Ontario: Carswell, 1996).

Kiss, A. & Shelton, D., *International Environmental Law* (Ardsley-on-Hudson: Transnational Publishers, 1991).

Mikdashi, Z., *The Community of Oil Exporting Countries* (New York: Cornell University Press, 1972).

Navia, J.M.B., *Environmental and Water Law in the South* (Utrecht, Netherlands: International Books, 1994).

Olisa, M.M., *Nigerian Petroleum Law and Practice* (Ibadan, Nigeria: Fountain Books, 1987).

Pearson, S.R., *Petroleum in Nigerian Economy* (California: Stanford University Press, 1970).

Schatzl, L.H., *Petroleum in Nigeria* (Ibadan: Oxford University Press, 1969).

Strosher, M., *Investigations of Flare Gas Emissions in Alberta* (Calgary: Alberta Research Council, 1996).

Thompson, A.R., *Environmental Regulation in Canada* (Vancouver: West water Research Centre, 1980).

ARTICLES IN BOOKS

Ajomo, M.A., "An Examination of Federal Environmental Laws in Nigeria" in M.A. Ajomo & O. Adewale, eds., *Environmental Law and Sustainable Development in Nigeria, 1st ed.* (Lagos: N.I.A.L.S., 1994).

Ajomo, M.A., "Law and Changing Policy in Nigeria's Oil Industry" in J.A. Omotola ed., *Law and Development* (Lagos: University of Lagos Press, 1987) 84.

Bruni, M.J., "Environmental Issues Confronting the Alberta Energy Resources Conversation Board" in *Environmental Direction: Environmental Review, Licensing, Enforcement and Liability in the Oil and Gas Industry* (Mississauga: Insight Press, 1990) 4.

Campbell-Mohn, C., "Petroleum" in C. Campbell-Mohn, B. Barry & J.W. Futrell, eds., *Environmental Law From Resources to Recovery* (St Paul, Minnesota: West, 1993) 695.

Elgie, S., "Making Bureaucracies Accountable: Judicial Review of Environmental Decisions" in S.A. Kennett, ed., *Law and Process in Environmental Management* (Calgary: Canadian Institute of Resource Law, 1993).

Fekumo, J.F., "Civil Liability for Damages Caused by Oil Pollution" in J.A. Omotola, ed., *Law and Development* (Lagos: University of Lagos Press, 1987) 254.

Greenwood, B., "Looking Ahead: Environmental Regulation- A Future?" in A.F. Boyle, ed., *Environmental Regulation and Economic Growth* (Oxford: Clarendon Press, 1994) 115.

Houch, O.A., "Of BATs, Birds and B-A-T: The Convergent Evolution of Environmental Law" in Stuart L. Deutsch & A. Dan Tarlock, eds., *Land Use and Environmental Review* (New York: Clark, Boardman, Callaghan, 1995) 361.

Hughes, E., "Civil Rights to Environmental Quality" in Elaine L. Hughes, A.R. Lucas & William A. Tilleman, eds., *Environmental Law and Policy* (Canada: Emond Montgomery Publications, 1993) 410.

Ifeadi, C.N. & Nwankwo, J.N., "Critical Analysis of Oil Spill Incidents in Nigerian Petroleum Industry" in *The Petroleum Industry and the Nigerian Environment* (Lagos: Federal Ministry of Housing and Environment, 1987) 104.

Kemper, R., "The Concept of Permanent Sovereignty and its Impact on Mineral Contracts" in *Legal and Institutional Arrangements in Mineral Development* (London: Mining Journal Books, 1982).

Kupchanko, E.E., "A Case of Compliance Through Administration of Licences and Permits" in Linda F. Duncan, ed., *Environmental Enforcement* (Edmonton: Environmental Law Centre, 1984) 9.

Madueke, C.I., "Environmental Protection Prospects for Implementation in Nigerian Petroleum Refineries." in *The Petroleum Industry and the Environmental of the Niger Delta* (Lagos: Federal Ministry of Housing and Environment, 1983) 55.

Nwankwo, J.N. & Irechukwu, D.O., "Problems of Environmental Pollution and Control in the Nigerian Petroleum Industry" in *The Petroleum Industry and the Nigerian Environment* (Lagos: Federal Ministry of Housing and Environment, 1983) 102.

Obi, C.I., "Political and Social Considerations in the Enforcement of Environmental Law" in M.A. Ajomo & O. Adewale, eds., *Environmental Law and Sustainable Development in Nigeria, 1st ed.* (Lagos: N.I.A.L.S., 1994) 67.

Odogwu, E.O., "Economic and Social Impacts of Environmental Regulations on the Petroleum Industry in Nigeria" in *The Petroleum Industry and the Environmental of the Niger Delta* (Lagos: Federal Ministry of Housing and Environment, 1983).

Ogunsawo, B., "Liability and Compensation for Environmental Damage" in M.A. Ajomo & O. Adewale, eds., *Environmental Law and Sustainable Development in Nigeria, 1st ed.* (Lagos: N.I.A.L.S., 1994) 58.

Ojikutu, R.O., "Environmental Funding and the Transfer of Technology" in M.A. Ajomo & O. Adewale, eds., *Environmental Law and Sustainable Development in Nigeria, 1st ed.* (Lagos: N.I.A.L.S., 1994) 144.

Olusi, O., "Human Health Hazards Associated with Petroleum Related Pollution" in *The Petroleum Industry and the Nigerian Environment* (Lagos: Federal Ministry of Housing and Environment, 1981).

Oyefolu, K.O. & Awobajo, O.A., "Environmental Aspects of the Petroleum Industry in the Niger Delta: Problems and Solution" in *The Petroleum Industry and the Environment of the Niger Delta* (Lagos: Federal Ministry of Housing and Environment, 1979) 145.

Prince, W. & Nelson, D., "Developing an Environmental Regulatory Model-Piecing Together the Growing Diversity of International Standards and Agendas" in *International Resources Law 1* (Denver: Rocky Mountain Law Foundation, 1995) 13-1.

Rankin, M. & Finkle, P., "The Enforcement of Environmental Law: Taking the Environment Seriously" in Peter Z.R. Finkle & Alastair R. Lucas eds., *Environmental Law in the 1980s: A New Beginning* (Calgary: Faculty of Law, The University of Calgary, 1981) 169.

Reif, L., "International Environmental Law" in G. Thompson, M.L. McConnell & B. Huestis, eds., *Environmental Law and Business in Canada* (Ontario: Canada Law Books, 1993).

Roman, A.J. & Hoey, K., "The Regulatory Framework" in G. Thompson, M.L. McConnell & L.B. Huestis, eds., *Environmental Law and Business in Canada* (Ontario: Canada Law Books, 1992).

Sasegbon, F., "Current Developments in Oil and Gas Law in Nigeria - With Comparative Analysis With Other African Oil Producing Countries" in *Energy Law '87* (Munich: Matthew Bender, 1987) 363.

"Submission of the Energy Resources Conservation Board to the Review Panel on Environmental Law Enforcement" in *Submissions to the Review Panel on Environmental Law Enforcement in Alberta* (Edmonton: Department of Environment, 1987) 6:1.

Swaigen, J.Z., "A Case for Strict Enforcement of Environmental Statutes" in Linda F. Duncan, ed., *Environmental Enforcement* (Edmonton: Environmental Law Centre, 1984) 2.

Swanson, E.J., "Reform Issues" in Elizabeth J. Swanson & Elaine L. Hughes, *The Price of Pollution: Environmental Litigation in Canada* (Edmonton: Environmental Law Centre, 1990) 202.

Udogwu, E.C., "Economic and Social Impacts of Environmental Regulation on the Petroleum Industry in Nigeria" in *The Petroleum Industry and the Nigerian Environment* (Lagos: Federal Ministry of Housing and Environment, 1981) 49.

Webb, K., "Between Rocks and Hard Places: Bureaucrats, Law and Pollution Control" in Allan Greenbaum, Alex Wellington & Ellen Baar, eds., *Social Conflicts and Environmental Law: Ethics, Economics and Equity, Volume 2* (Canada: Captus Press, 1995).

ARTICLES

Adewale, O., "Environmental Pollution in the Petroleum Industry" (1991) 12 Justice 9.

Adewale, O., "Legislative Considerations in Monitoring Water Quality" (1991) 6 Justice 75.

Adewale, O., "The Right of the Individual to Environmental Protection: A Case Study of Nigeria" (1991) 12:4 Rivista Giuridica Dell' Ambiente 649.

Adenikinju, A.F., "Energy-Pricing and the Environment in an Oil-Exporting, Developing Country" (1995) 14:4 OPEC Review 307.

Alegimenlen, O.A., "Issues in the Acquisition of Petroleum Development Technology for Third World States" (1991) 15:2 OPEC Review 123.

Anand R. & Scott, I.G., "Financing Public Participation in Environmental Decision making" (1982) 60 Canadian Bar Review 81.

Baloro, J., "Some International Legal Problems Arising from the Definition and Application of the Concept of Permanent Sovereignty Over Wealth and natural Resources of States" (1987) 20 Comparative and International Law Journal of South Africa 335.

Black, B.S. & Pierce, R.J., "The Choice Between Markets and Central Planning in Regulating the U.S. Electricity Industry" (1993) Colum. L. Rev. 1339.

Bohme, V.F. & Brushett, E.R., "Oil Spill Control in Alberta" (Paper presented at the 1977 Oil Spill Conference organized by the American Petroleum Institute held at New Orleans, Louisiana, 8-10 March 1977) 91.

Brooks, G., "Environmental Economics and International Trade: An Adaptive Approach" (1993) 5 Georgetown International Law Review 277.

Cameron, J. & Abouchar, J., "The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment" (1991) 14:1 Boston College International and Comparative Law Review 1.

Coldham, S., "Legal Responses to State Corruption in Commonwealth Africa" (1995) 39:2 Journal of Africa Law 15.

Carpenter, R.A., "Ecology in Court, and Other Disappointments of Environmental Science and Environmental Law" (1982) 15 Natural Resources Lawyer 573.

Cotton, R. & Clairman C., "The Effect of Environmental Regulation in Technological Innovation in Canada" (1995) 21 Canada-United States Law Journal 239.

Deatherage, S.D., "Environmental Law" (1990) Texas Technical Law Review 261.

Dudek, D.J., Stewart R.B. & Wienner, J.B., "Environmental Policy for Eastern Europe: Technology-Based Versus Market-Based Approaches" (1992) 17:1 Columbia Journal of Environmental Law 1.

"Editorial" (1995) 93:48 Oil and Gas Journal 21.

"Extraterritorial Environmental Regulation" (1991) 104 Harvard Law Review 1609.

Fisher, J., "NEPA, NAFTA and Cross-Border Electric Generating Projects" (1994) Georgetown International Environmental Law Review 297.

Gardiner D. & Portney, P.R., "Does Environmental Policy Conflict with Economic Growth?" (1994) 115 Resources 19.

Hargrave, L., "Statutory and Hortatory provisions of the Louisiana Constitution of 1974" (1982) 43:3 Louisiana Law Review 647.

Henderson, J.A. & Pearson, R.N., "Implementing Federal Environmental Policies: The Limit of Aspirational Commands" (1978) 78:7 Columbia Law review 1429.

Housman R.F. & Zaelke, D.J., "Making Trade and Environmental Policies Mutually Reinforcing: Forging Competitive Sustainability" (1993) 23 Environmental Law 545.

Hudec, A.J. & Paulus, J.R., "Current Environmental Regulation of the Oil and Gas Industry and Emerging Issues" (1990) 28:1 Alberta Law Review 171.

Ikporukpo, C.O., "The Management of Oil Pollution of Natural Resources in Nigeria." (1985) 20:3 Journal of Environmental Management 199.

Irvine, W., "Human Rights, Environmental Racism: The Nigerian Executions and the Case for the Ogoni" (1996) Buffalo Women's Journal of Law Social Policy 66.

Kassim-Momodu, M., **Comment on Nigeria** (1988) 6:2 Journal of Energy and Natural resources Law 115.

Kassim-Momodu, M., "Impact of the Land Use Act on Petroleum Operations in Nigeria" (1990) 8;1-4 Journal of Energy and Natural Resources Law 291.

Kinako, P.D.S., "Short-term Effects of Oil Pollution on Species Numbers and Productivity of a Simple Terrestrial Ecosystem" (1981) 26 Environmental Policy (Series A) 87.

Knott, D., "Heated Debate Hits Niger Delta Oil" (1996) 94:17 Oil and Gas Journal 14.

Lacunza, S.C., "From Dictatorship to Democracy: Environmental Reform in Chile" (1996) 19 Hastings International and Comparative Law Review 539.

Landau, J.L., "*Chevron, U.S.A.* v *NRDC*: The Supreme Court Declines to Burst EPA's Bubble Concept" (1985) 15 Environmental Law 285.

Latin H., "Regulatory Failure, Administration Incentives, and the New Clean Air Act" (1991) 21 Environmental Law 1647.

Mayda, J., "Environmental Legislation in Developing Countries: Some Parameters and Constraints" (1985) 12:4 Ecology Law Quarterly 997.

McAuslan, P., "The Role of Courts and Other Judicial Type Bodies in Environmental Management" (1991) 3:2 Journal of Environmental Law 195.

Meager, J.P., "Environmental Protection and Industries in Developing Countries: The Case of India Since Bhopal" (1990) 3:2 Stanford Journal of International Law 1.

Millard, V., "Recent Experience in Alberta with Public Involvement and Environmental Negotiation in the Energy Industry" (1987) 2;2 Canadian Environmental Mediation Newsletter 1.

Mink, F.J., "Environmental Noise Control - Whose Responsibility is it?" (Paper presented to the 1996 Conference on Environmental Noise Control Engineering, at Banff, Alberta, 14-16 April 1996).

Muldoon, P., "The Fight for an Environmental Bill of Rights" (1988) 15:2 Alternatives 33.

Neff, A., "Not in their Backyards, Either: A Proposal for a Foreign Environmental Practices Act" (1990) 17 Ecology Law Quarterly 477.

Odu, C.T.L., "Oil Pollution and the Environment" (1977) 3 Bulletin of the Science Association of Nigeria 282.

O'Ferrall, B., "The ERCB and the NRCB: Are They Equivalent?" (1992) 7:2 Environmental Law Centre News Brief 1.

Ogowewo, T.I., "The Problems With Standing to Sue in Nigeria" (1995) 39:1 Journal of African Law 1.

Ojikutu, R.O., "Sustainable Development, Oil Communities and the Oil Industry" (Paper presented to a Seminar on Oil and Gas Law at the University of Lagos, 14-16 May 1996).

Okeke, C.N., "Africa and the Environment" (1990) 3:24 Annual Survey of International and Comparative Law 37.

Oko, O., "Lawyering in Chains: Restrictions on Human Rights Advocacy Under Nigeria's Military Regimes" (1997) 10 Harvard Human Rights Journal 257.

Okogu, B.E., "The Oil Sector and the Future of the Nigerian Currency: Perspective Planning Against Instability" (1991) 15:1 OPEC Review 13.

Omorogbe, Y., "Law and Investor Protection in the Nigerian Natural Gas Industry" (1996) 14;2 Journal of Energy and Natural resources Law 179.

Osuno, B.A., "The Role of the Petroleum Inspectorate Division of the NNPC as the Guardian of the Nigerian Oil Industry" (Paper presented to a National Workshop on Nigerian Petroleum Law, Lagos, 31 May 1984).

Pathak, R.S., "International Trade and Environmental Development: A View from India" (1994) 1 India Journal of Global Legal Studies 335.

Popovic, N.A.F., "In Pursuit of Environmental Human Rights: Commentary on the Draft Declaration of Principles on Human Rights and the Environment" (1996) 27 Columbia Human Rights Law Review 487.

Practising Law Institute, "Principles for Memoranda of Understanding" (1992) 769 PLI/Corp 471.

Prince, J.P., "The ERCB and the NRCB: A Response to Mr O"Ferrall" (1992) 7:3 Environmental Law Centre News Brief 3.

Purvis, J.A., "The long Arm of the Law: Extraterritorial Application of U.S. Environmental Legislation to Human Activities in Outer space" (1994) 6 Georgetown International Environmental Law Review 455.

Rankin, M., "Economic Incentives for Environmental Protection: Some Canadian Approaches" (1991) 1 Journal of Environmental Law and Policy 241.

Ray R., "Climate Change: Federal, Provincial Ministers Divided on Governments' Role in Emission Cuts" (1995) 6:9 Environmental Policy and Law 307.

"Recent Development" (1995) 25:3 Environmental Law Reporter at 10162.

Reynolds, L.A., "Scientific Uncertainty and Environmental Decision-Making: An Interface of Science and Law" (Paper presented to the Canadian Bar Association Seminar "Emerging Issues in Environmental Law" at Ottawa, Ontario, 29 April 1994).

Saville, F.M., & Neufeld, R.A., "The Energy Resources Conservation Board of Alberta and Environmental Protection" (1989) 2 Canadian Journal of Administrative Law and Practice 294.

Schoenbaum, T.J., "Free International Trade and Protection of the Environment: Irreconcilable Conflict" (1992) 86 American Journal of International Law 700.

Shapiro, S.A. & McGarity, T.O., Not So Paradoxical: The Rationale for Technology-Based Regulation [1991] 1991:3 Duke Law Journal 729.

Stewart, R.B., "The Discontents of Legalism: Interest Group Relations in Administrative Regulations" (1985) Wisconsin Law Review 655.

"Technology-Based Emission and Effluent Standards and the Achievement of Ambient Environmental Objectives? (1982) 91:4 Yale Law Journal 792 at 794-98.

"The Nigeria Liquefied Natural Gas Project: Current Structure and Future Prospects" (1995) 62:5 Petroleum Economist xvi.

"Trends in International Environmental Law" (1992) Harvard Law Review 146 at 153.

(1975) 11 S.C. 155.

Ubezonu, C., "Doing Business in Nigeria by Foreigners: Some Aspects of Law, Policy and practice" (1994) 28 International Lawyer 345.

Wilkins, T.A. & Hunt T.E., "Agency Discretion and Advances in Regulatory Theory: Flexible Agency Approaches Towards the Regulated Community as a Model for the Congress-Agency Relationship" (1995) 63 George Washington Law Review 479.

Zakariya, H.S., "Petroleum Exploration in Developing Countries: The Need for a Global Strategy Based on Public Policy" (1981) 5:1 OPEC Review 8.

Zakariya, H.S., "Transfer of Petroleum Technology to Developing Countries" (1982) 6:1 OPEC Review 41.

CASES

Adesanya **v** *President of the Federal Republic of Nigeria & Anor* (1981) 1 All N.L.R. 1.

Alberta Minister of the Environment **v** *SCA Waste Systems Ltd.* [unreported] Alta Q.B. Red Deer, Suit No. 910001097, November 25 1991.

Allar Irou **v** *Shell-BP* [unreported] Suit No. W/89/71, Warri HC 26/11/73.

Esso Resources Canada Ltd, Quirk Creek Gas Processing Plants. ERCB Decision 82-12. 7 May 1982.

Gani Fawehinmi **v** *H. Akilu, In re J.A. Oduneye (DPP)* (1987) 4 N.W.L.R., pt 67 at 797.

Strathfield Oil & Gas Ltd, Application for - A Permit to Construct a Pipeline- Approval to Construct a Satellite Production Facility- A Well Licence Provost Field. ERCB Decision D 91-9, 13 June 1991.

Umudje **v** *Shell-BP* (1975) 11 S.C. 155.

DOCUMENTS

A Memorandum of Understanding between Alberta Environmental Protection and the Alberta Energy and Utilities Board Regarding Coordination of Release Notification Requirements and Subsequent Regulatory Response. EUB Informational Letter IL 96-10, 20 September 1996.

A National Overview (Ottawa: Statistics Canada, 1997) 55.

Administrative Procedures for Environmental Impact Assessments in Energy Projects, ERCB General Bulletin GB 93-14, 13 December, 1993.

Alberta Energy and Utilities Board, The EUB and Energy Regulation, EUB Guide 57-1a, November 1996.

Annual Report of the Alberta Ministry of Energy (Edmonton: Alberta Department of Energy, 1996).

Charter of the Economic Rights and Duties of States, U.N.G.A. Res. 3281 (XXIX), 12 Dec. 1974.

Declaration of the UN Conference on the Human Environment, (1972) UN Doc.A/Conf.48/14.

Environmental Regulation of Natural Gas Development in Alberta, Canada.

ERCB and AEP Administrative Procedures for Preparing an Environmental Impact Assessment, November 1993.

ERCB and Alberta Environment: Public Involvement in the Development of Energy Resources. ERCB-AE Informational Letter IL 89-4, 22 June 1989.

ERCB Gas Flaring in Alberta, ENERFACTS 8.EUB Informational Letter 94-5, Oil and Gas Industry Notification Requirements.

ERCB Public Hearing Process, ERCB Guide G-16. [undated]

EUB Policy Review of Solution Gas Flaring and Conservation in Alberta, EUB 97-A, June 1997.

EUB: The Oil and Gas Occurrence Report, 1995.

EUB: The Oil and Gas Occurrence Reports, 1984 - 1985.

FEPA, "Guidelines and Standards for Environmental Pollution Control in Nigeria" (1991).

Rio Declaration on Environment and Development, (1972) 31 I.L.M. 874.

PUBLICATIONS

African Guardian, 28 September 1992.

AM News, [Lagos] 8 January 1996.

Daily Sunray [Nigeria], 21 October 1993.

Environment News, West'Legal News 3467 (Released 11-2-95).

New York Times, 12 November 1995.

Shell Petroleum Nigeria Ltd, "Shell in Nigeria: Of Problems and Progress" (June 1995).

Tell [Lagos], 19 January 1996.

The Edmonton Journal, 29 November 1997.

LEGISLATIONS

Activities Designation Regulation, Alta Reg. 211/96.

Alberta Energy and Utilities Board Act, S.A. 1994, c. A-19.5.

Alberta Energy and Utilities Board Statutes Amendment Act, S.A. 1996, c.5.

Associated Gas Re-injection (Continued Flaring of Gas) 1984 (Nigeria) 1990, c. 350.

Associated Gas Re-injection Act 1979 (Nigeria), 1990, c. 26.

Bendel (Edo & Delta, Nigeria) State Lands (Fees) (Amendment) Regulations 1990, Schedule B.

Class Proceedings Act, 1992, S.O. 1992, c.6.

Criminal Justice (Miscellaneous Provisions) Act (Nigeria) 1975, c. 30.

Department of Environment Act, R.S.A. 1980, c. D-19.

Energy Resources Conservation Act, S.A. 1971, c. 63, now R.S.A. 1980, c. E-11.

Environmental Assessment (Mandatory and Exempted Activities) Regulation (Alta. Reg. 111/93).

Environmental Protection and Enhancement Act, S.A. 1992, c. E-13.3, as am. 1994, c. 15.

Fire Prevention Act, S.A. 1982, c. F-10.

Harmful Waste (Special Criminal Provisions) Act 1988 (Nigeria) 1990, c. 165.

Nigerian Criminal Code 1958, c. 42.

Nigerian National Petroleum Corporation Act , 1977.

Nigerian National Petroleum Corporation (Amendment) Act (Nigeria), 1979.

Oil and Gas Conservation Act, R.S.A. 1970, c. 267.

Oil and Gas Conservation Act, R.S.A. 1980, c O-5, as am. 1994, c. 26.

Oil and Gas Conservation Act, S.A. 1938, c. 15.

Oil and Gas Conservation Act, S.A. 1957, c. 63.

Oil and Gas Conservation Regulation, Alta. Reg. 151/71.

Oil in Navigable Waters Act 1968 (Nigeria), 1990 c. 337.

Petroleum Act, 1969 [Nigeria], 1990, c. 350.

Petroleum (Drilling and Production) Regulations, 1969.

Petroleum Production and Distribution (Anti-sabotage) Act (Nigeria), 1975, s. 2.

Petroleum Refining Regulations, (Nigeria) 1974, Legal Notice 45.

Petroleum Regulations, 1967 (Nigeria), 1990, c. 350.

Pipeline Act, R.S.A. 1980, c. P-8.

Pipeline Regulation, Reg. 284/74 as am., S. 31.

Pollution Abatement Regulations, 1991.

Release Reporting Regulation, Alta. Reg. 117/93.

Supremacy of Power and Constitution Amendment Decree (Nigeria), 1984, c.1.

Technology Assessment Act, 86 Stat. 797 (1972).

Transportation of Dangerous Goods Control Act, S.A. 1982, c. T-6.5, as am. 1994, c. M-26.1.

Turner Valley Gas Conservation Act, S.A. 1932, c. 6.